



Smart Computing

& CONSUMER ELECTRONICS

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In Plain English

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Clean Out Old Software Clutter

Completely Remove Programs



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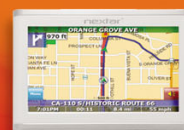


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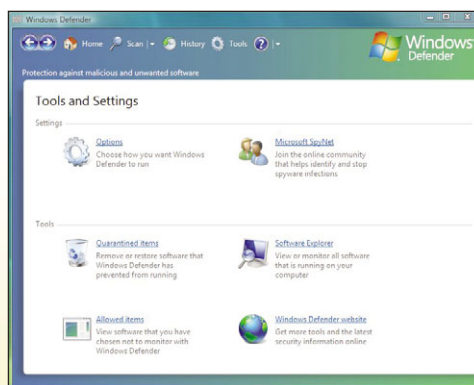
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In which Mr. Modem, author of several books—none of which has won the Pulitzer Prize—and co-host of the weekly "Gutsy Geeks" radio show, names the top Web sites.



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Corrections/Clarifications

The advertisement for F-Secure Internet Security 2009 (on page 17 of the February issue) lists an incorrect price. The correct price is \$59.99.

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Consumer Electronics

We tell you what you really need to know about various types of consumer electronics products. This month, we cover:

Memory Cards

Printer Ink & Toner

Digital Recorders

Lexar 16GB Platinum
II 80x CF card



Editor's Note

If only uninstalling software from our PCs was as easy as uninstalling applications from our PDAs and mobile phones.

I've tested (and used personally) tons of handheld devices over the years. Some of them had annoying quirks, a few developed serious problems, and one test unit spontaneously died. (That's my story and I'm sticking to it.) But, to date, I haven't run in to problems uninstalling applications from any of them.

Whenever I want to remove a program, I simply find the Delete (or similar) command, select it, and then watch the application disappear from the program menu. At worst, I have to wait while my phone reboots. I've also never run into performance issues after removing an application from my phone. If it left any files behind, they haven't interfered with the OS enough for me to notice.

That's not to say that PDAs and smartphones, with their small, efficient OSes, can't develop problems during uninstallations. Even with these mobile applications, problems sometimes arise when people try to remove them. But, the SmartPeople Computer Support center's phones aren't ringing off their hooks with smartphone program uninstallation disasters. We do, however, receive plenty of calls related to uninstalling software from PCs.

Programs don't always disengage from Windows (or other computer operating systems, for that matter) as cleanly as we expect. Sometimes the results aren't noticeable. Other times, they create problems or error messages that we can't ignore.

This issue gives you tips for safely removing software and recovering from bad uninstallations. We also look at software that can help prevent uninstallation disasters down the road. Happy hunting.

Joshua B. Gulick

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In Plain English



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*Compiled by Christian Perry**Illustrated by Lori Garriss*

DESKTOPS & LAPTOPS

Home Servers Jump Back In The Saddle

In late 2007, HP launched its MediaSmart Server to much fanfare, in turn ushering in the age of the home media server that could help consumers handle their growing collections of digital media. However, soon after that release, Microsoft announced that its Windows Home Server operating system, which the MediaSmart uses, had a critical flaw that could lead to data loss. In the eyes of the PC-buying public, the home server no longer sounded like such a great idea.

Since then, Microsoft has repaired that flaw, and now HP has revamped its MediaSmart Server family. The EX485 (\$599; www.hp.com) and EX487 (\$749) confirm HP's commitment to the home server concept, which remains a compelling option for heavy users of digital video, MP3s, and other storage-hungry data.

Both models are nearly identical, except the EX485 includes one 750GB hard drive, while the EX487 includes two 750GB hard drives, for a total of 1.5TB (terabytes). All hard drives in these models are 7,200rpm SATA (Serial Advanced Technology Attachment) drives. Although the storage increase in these new servers vs. the storage capacities in the previous generation isn't massive (it was 500GB and 1TB in the older models), other upgrades are indeed impressive.

HP isn't letting prior home server troubles impede its plans for the platform.

The company's newest MediaSmart generation includes beefier specs and new streaming abilities.



The older servers used an AMD Sempron 1.8GHz 64-bit processor, but the new models use an Intel Celeron 2.0GHz 64-bit processor. And, while the previous models had just 512MB of DDR2 DRAM (double-data-rate 2 dynamic RAM), the EX485 and EX487 quadruple that amount to 2GB. Other hardware elements remain the same: four USB 2.0 ports, one eSATA port, four bays for hard drive expansion (three available in the EX485 and two available in the EX487), and a slick-looking case that has the same dimensions as previous models.

The basic premise behind the MediaSmart Servers also remains,

offering an easily accessible location for all computers on a home network to store and access files, as well as the ability to easily (and automatically) back up and restore data. But, for users with Apple computers, the new generation of MediaSmart now supports Mac backup through the use of Apple's Time Machine software.

Another addition is the ability to stream video and other content to media players (such as the Xbox 360 and PlayStation 3), thanks to the integration of PacketVideo's TwonkyMedia server. Also new is integration with cloud computing via Amazon.com's S3 online storage service. ■

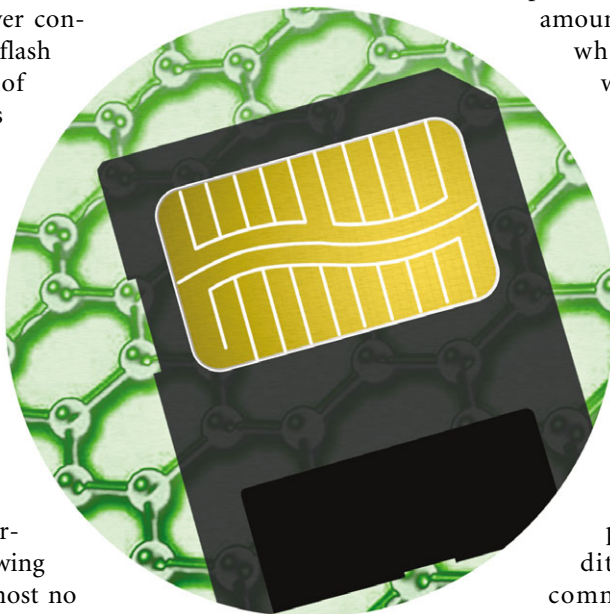
STORAGE

Memory Goes Minuscule With Graphite

Future flash memory could boast more impressive storage and power consumption abilities than today's flash memory, all thanks to a strip of graphite that is only 10 atoms thick.

Known as graphene, this incredibly thin substance could be used to create memory that allows five times as much storage as today's flash memory. Further, the memory can be created using 10-nanometer technology, which is much smaller than the 45-nanometer technology used for today's chips.

Researchers from Rice University have published research showing that graphene chips will use almost no power while holding data. Further, the



chips boast a massive on-off ratio (or the amount of electricity held by a circuit when it's on as opposed to off), which leads to a better design in terms of electrical current.

According to Rice professor James Tour, the ratio is a million-to-one, dwarfing the 10-to-1 ratio used by phase-change memory, another next-generation memory.

Tour also says graphene memory generates minimal heat and isn't affected by high temperatures, which should allow manufacturers to place the chips in close proximity to processors. In addition, the chips are sturdy, accommodating 20,000 lab tests with no degradation. ■

DISPLAYS

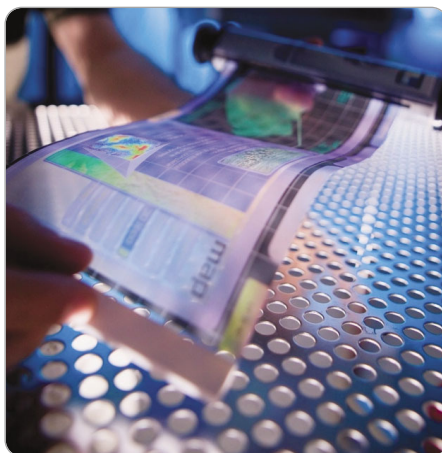
Bendable Displays Emerge Yet Again

HP and the Flexible Display Center at Arizona State University have revealed a flexible display prototype that appears closer to retail reality than many prior inventions. The two groups created a paper-like, unbreakable display using HP Labs' SAIL (self-aligned imprint lithography) technology, which enables the fabrication of thin film transistor arrays on a flexible plastic material in a low-cost roll-to-roll manufacturing process, according to HP.

Made almost exclusively of plastic, the display is very portable, consumes less power than current displays, and uses 90% fewer materials by volume than current displays. If mass produced, HP expects that this flexible display can significantly reduce the cost of notebooks, smartphones, and other electronic devices.

The display is created by producing stacks of semiconductor materials and metals on

DuPont Teijin Films' flexible Teonex Polyethylene Naphthalate substrates, according to HP. The substrates are then patterned using the SAIL process, and E Ink's Vizplex imaging film is used to produce an "actively addressed flexible display" on plastic. ■



Innovative flexible displays from HP and Arizona State University researchers have qualities similar to paper and could help to drastically reduce prices of mobile devices in the future.

PRINTERS & PERIPHERALS

PC Data Transfer Made Easy

If you often swap data between your laptop and a PC or need to perform other sharing or maintenance tasks between two computers, you might appreciate Aten's CS661 Laptop USB KVM (Keyboard Video Mouse) Switch (\$99.95; www.aten-usa.com), which makes data transfer and dual PC control as easy as plugging in a USB cord and clicking your mouse a few times.

This device (which works with desktops or laptops, despite its name) is roughly the size of an MP3 player and has USB 2.0 cords extending out two sides to allow connection between two computers. Once plugged in, the switch shows



the Desktop of the remote computer on the display of the local computer. This is similar to Windows Remote Desktop, but the software installs easily (in fact, it installs automatically when you connect the device), and no headache-inducing network configuration is necessary—just plug in and go.

Once operational, you'll have full control over the remote computer using the local computer's mouse and keyboard, and you can see the remote environment in a full-screen or window mode (although, the Match/Restore Remote Screen feature can adjust the resolution of the remote Desktop to match the local monitor's resolution). The Laptop USB KVM Switch also includes a complete file management feature that allows two-way file transfer between the local and remote computers. ■

Synchronizing data between two computers doesn't get much easier than this. Aten's Laptop USB KVM Switch allows a simple connection between any PCs for easy two-way file transfer.

CPUs, CHIPS & CARDS

Ion Goes Heavy On Performance

Now that consumers have grown accustomed to netbooks and other similarly diminutive platforms, manufacturers are being pressured to create hardware that's not limited by the dearth of space in these devices. That challenge isn't holding back Nvidia (www.nvidia.com), which has announced a new platform called Ion that combines an Intel Atom CPU and an Nvidia GeForce 9400 graphics processor.

According to Nvidia, the Ion platform trumps other platforms found in today's netbooks, SFF (small-form-factor) PCs, and all-in-one PCs due to the presence of the 9400, which delivers up to 10 times the graphics performance of competing products. The GPU (graphics processing unit) also plays 1080p high-definition video, supports the full Windows Vista user interface, as well

as the upcoming Windows 7, and can even run current PC games.

The 9400 offers this performance in a package that consumes about half of the space of current Atom CPU-based platforms with little impact on battery life. In the past, many integrated graphics solutions were dreadfully underpowered compared to discrete graphics cards, but the Ion platform certainly shows potential for a better future. ■



How small can a computer get? With Nvidia's new Ion platform, manufacturers can create amazingly small devices that offer performance similar to desktop machines.

DIGITAL MISCELLANEA

Snapshot-Savvy Smartphone

Today's mobile devices are notorious for including integrated cameras with pitifully low resolutions. Considering that digital cameras continue to drastically drop in price and size as their resolutions balloon, consumers are left scratching their heads while holding expensive smartphones that generally offer a maximum of 3.2MP (megapixels).

But, change is finally here. In September 2008, Nokia (www.nokia.com) released its N96 smartphone complete with a 5MP camera, and now Samsung (www.samsung.com) has announced plans to bring its Innov8 smartphone to the United States. The Innov8 makes no qualms about its primary focus, which is an integrated 8MP camera. In fact, on the outside, the Innov8 resembles a pure camera, and for good reason—included are a mechanical shutter, automatic lens cover, and a powerful LED (light-emitting diode) flash.

The Innov8 uses the Symbian S60 operating system and handles all of the typical smartphone functions such as email, instant messaging, multimedia playback, and even

FM radio. The smartphone is expected to be released on the AT&T network and will include either 8GB or 16GB of internal memory. The release data was not yet announced at press time. ■

Samsung's Innov8 not only includes all the usual smartphone functions, but it also integrates an impressive 8MP camera.



PROBLEM-SOLVER: TROUBLESHOOTING THE NEWS

My hard drive is suddenly taking lots of time to complete conventional tasks.

If virus scans, defragging, and other routine tasks suddenly take far longer than they used to (as in several hours instead of an hour or less), check that the motherboard port is working properly. Try plugging the drive into another port. Alternately, try replacing the hard drive cable between the drive and the motherboard.

The fan on my graphics card has started squeaking. How can I fix it?

If this is an expensive graphics card that's still under warranty, consider returning it, because the fan might soon fail. If you don't return it, carefully apply a few drops of WD-40 to the fan's bearings, which you typically can find beneath a sticker. Another option is to buy and install a third-party fan.

Why does the second page I print always look better than the first?

If the quality of your printouts always seems to improve after the first page is printed, you likely need to clean your printer. Check your

printer's manual or the manufacturer's Web site for cleaning instructions. Most printers include a software interface that lets users initiate quick or comprehensive cleaning procedures.

Why did my overclocked CPU return to its stock speed settings?

Some motherboards will revert CPUs to their original settings if they detect a boot failure or another problem related to the hardware settings. Reapply the higher settings, but if it happens again, try using a lower overclocked speed. ■

DULY QUOTED

"Anytime you see work at home [advertisements], know that is a scam. There is no doubt about it."

—Robert Siciliano, CEO of IDTheftSecurity.com, says that work-at-home scams and others continue to proliferate across the Internet.
Source: FOX News

News From The Help Desk

Our Most Common Tech Calls

COMPILED BY SETH COLANER

Each month, we receive numerous technical support calls and email messages. Some computer problems are fairly common, and we find that many callers struggle to resolve the same issues. In this article, we cover some of the most common or timely tech support questions and provide our solution for each of them.

Q My hard drive is making clicking noises. What should I do?

A The clicking of a hard drive is a death knell. It's not a question of whether it's going to fail, but rather a question of when.

That said, be sure it is indeed the hard drive that's making the noises. It's possible that a wire has become loose and is interfering with one of the fans. Remove the side of the computer case and boot the computer. Without touching anything, observe the fans. If nothing is touching the fan blades but you still hear clicking, your hard drive is dying.

As soon as possible, back up your entire hard drive and purchase and install a new one.

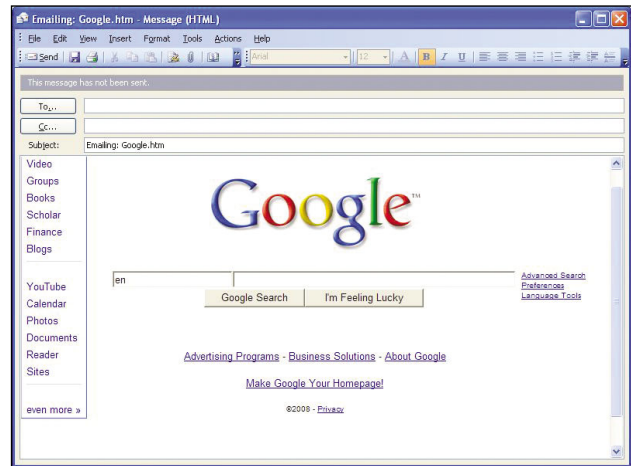
Q How do I send a Web page via email?

A The process depends on whether you want to send a link to the Web page or actually email the complete Web page.

To do the latter in Internet Explorer 7, click Page and click Send Page By Email. Your default email client will automatically create a new message with the complete Web page embedded. (This is not possible in Firefox without an add-on.) Bear in mind that sending someone a complete Web page is a bit unorthodox; there aren't many situations where you would want to do this. It's much easier to simply send someone a link to the Web page.

There are a couple of different ways to send someone a link. In IE7, click Page and click Send Link By Email. In Mozilla Firefox, click File and click Send Link. In both cases, your default email client will create a new message with the link to the Web page embedded. You can also simply highlight the entire link in the browser's Address Bar, press CTRL-C to copy it, create a new email message, and paste (CTRL-V) the link into the body of the email.

Another way to send a Web page is to first save it onto your computer as a file. In Firefox, click File and Save Page As. Under Save As Type, you can select Web Page,



When you send a Web page via email in Internet Explorer, the page is embedded in an email.

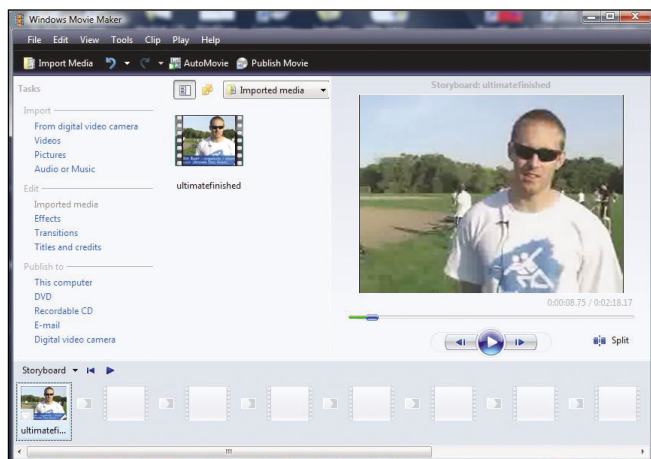
Complete or Web Page, HTML Only. (The former will save everything including graphics and formatting; the latter will only save the HTML [Hypertext Markup Language] tags and text.) Make your selection, navigate to the correct area or folder, and click Save.

In IE7, click Page, click Save As, and make a selection under Save As Type. You have the same two options as in Firefox, but you can also choose to save the page as a Web Archive, or MHT (MIME HTML, which is a format that encodes all files on a Web page into a single file). Then, you can just attach the MHT file to an email and send it. The difference between Web Page, Complete and an MHT file is that a complete Web page will not retain all the images and formatting if you send it as an attachment.

Q I have a lengthy home movie saved on my computer. Is there an easy way to take a short clip from the movie and send it to someone?

A For the last several years, PCs have come with a program called Windows Movie Maker installed. You just need to import the video into this program, cut out the section you want to send, and save it as a separate file. Assuming it's a very short clip—with a file size under a few megabytes—you can then attach the file to an email and send it.

Click Start, All Programs, and Windows Movie Maker. When the program launches, click Import Media. Locate



Using Windows Movie Maker, you can import, edit, and save videos.

the video, click to select it, and click Import. Depending on the size of the video clip, this process could take a while.

When the video finishes importing, click a clip and drag it to the bottom of the screen to place it in one of the white boxes. Click Storyboard and select Timeline just above the white boxes to see the video displayed with a time code above it. Click the clip to select it. On either side of the clip, there is a black arrow; to cut out part of the clip, click and drag the arrows until only the part of the clip you want remains. If you make a mistake, just press CTRL-Z to undo the error. You can check your work by playing the video back in the viewing window on the right side of the screen.

To save the freshly cropped video file, click File and Publish Movie. When the Publish Movie window appears, you can choose where to save it—on your computer, onto a CD or DVD, as an email attachment, or to a digital camcorder. For our purposes, click Email and click Next.

When the process is complete, you can click Save A Copy Of My Movie On My Computer to preserve a copy for yourself. Specify a location and click Save. When you're ready to proceed, click Attach Movie. Your default email program will automatically create a new message with the movie attached. Enter in the recipient's email address, add a message, and send it.

Q How can I keep my screen saver from coming on every few minutes?

A Click Start, Control Panel, and Appearance And Personalization. Click Change Screen Saver (under Personalization). When the window appears, look for the Wait entry. Here you can change the number of minutes before the screen saver engages. Make your selection, click Apply, and then click OK to close the window.

In Windows XP, click Start, Control Panel, and Appearance And Themes. Click Choose A Screen Saver,

Feature Package Topics

Each *Smart Computing* issue includes tips, reviews, and information about a variety of topics. However, each issue also has a featured group of articles about a selected topic. Below is a list of the Feature Packages from the previous year. As a *Smart Computing* subscriber, you have access to all of our archived articles at www.smartcomputing.com.

March 2008:	Solve Common PC Problems: Fix It Yourself Step-By-Step!
April 2008:	The Perfect Home Network: A Step-By-Step Guide
May 2008:	Protect Your PC & Your Privacy: Block Intruders & Malware
June 2008:	Go Wireless: Share Audio, Video & Data Without Cable Clutter
July 2008:	Clean Out Your PC: Preventive Maintenance
August 2008:	Troubleshoot Software: Get Rid Of Glitches
September 2008:	Do It Yourself: Notebook Repair
October 2008:	Boost Your PC's Performance: Optimize Windows & Upgrade Hardware
November 2008:	Reinstall Windows: Breathe New Life Into Your PC
December 2008:	Holiday Gift Guide
January 2009:	Did You Really Back Up?
February 2009:	Solve Windows Problems

and when the window appears, click the Screen Saver tab. Set the number of minutes you want the computer to wait before the screen saver comes on, click Apply, and click OK.

Q I have a bunch of documents in different formats (Microsoft Word, Excel, and so on), and I'd like to put them together in one large file. Is there any way to do that?

A There is, and it's actually pretty slick, but you need Adobe Acrobat (the full version of the free PDF [Portable Document Format] reader everyone has), which you can purchase from www.adobe.com (the Standard version is \$299).

Open Adobe Acrobat. Click Create and then click Merge Files Into A Single PDF. Click Add Files, and when the window appears, drag and drop any files into it that you want to be in the single PDF. These need to be listed in the order you want the pages to appear. You can click each item and then click Move Up or Move Down to change the file's positioning in the list. When you've finished compiling your list, click Combine Files, choose a location to save the PDF, and click Save. ■

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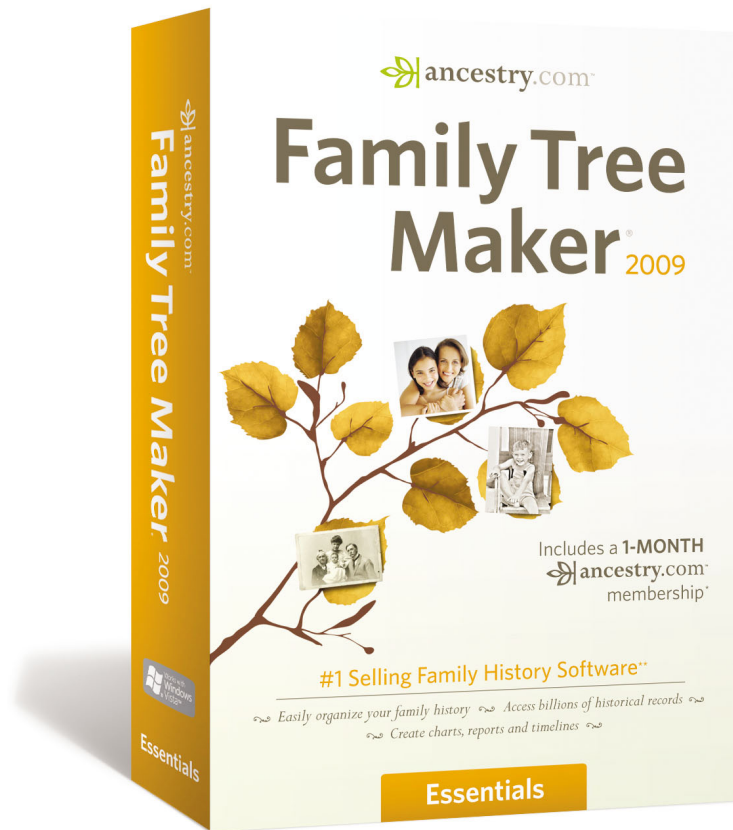
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Features & Benefits

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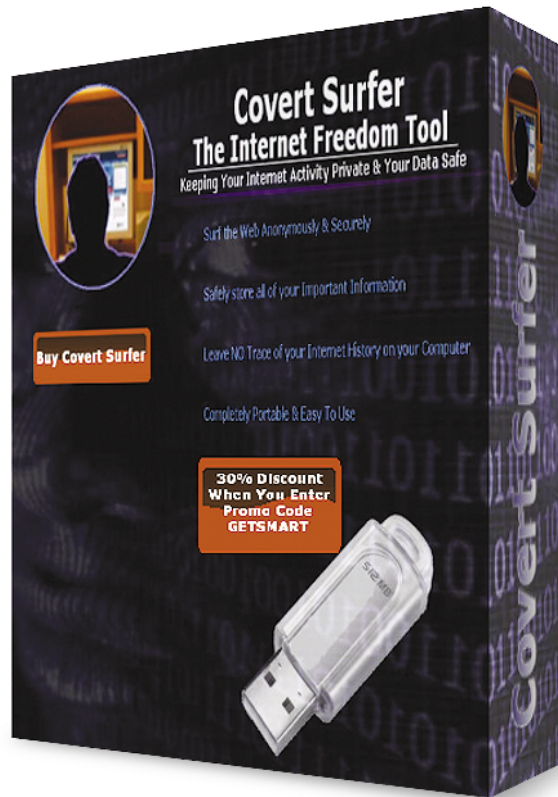
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Two new gizmos really break new ground. Let's take a look.

Fusion-io ioDrive

You've heard or read about SSDs (solid-state drives), the flash memory drives that are giving hard drives such a hard time lately. They're still pretty expensive for what you get, but their prices are dropping and their performance is increasing.

Trouble is, SSD performance is ramping up so quickly that certain models are already approaching the 300MBps (megabytes per second) theoretical maximum throughput of the 3Gbps (gigabits per second) SATA (Serial Advanced Technology Attachment) hard drive interface, and 6Gbps SATA hasn't trickled down to the mainstream yet. A newly formed company called Fusion-io figured, why not take advantage of the faster PCI-E (Peripheral Component Interconnect-Express) instead?

Enter the ioDrive, a radical new approach to desktop storage. Instead of looking like a hard drive in a metal case, the ioDrive comes as an x4 PCI-Express card. It will fit in an x8 or x16 slot, too (although not a legacy PCI slot), but it won't be any speedier.

Not that speed is a major worry. The ioDrive is simply faster than any SSD I've tested, let alone any hard drive. It's even faster than two Samsung SSDs combined in a RAID (redundant array of independent drives).

Despite looking like an expansion card, the ioDrive behaves like a hard drive. You can install programs on it and copy data to

it, and the ioDrive will remember it all when you turn off the PC. Unfortunately, it isn't bootable, so you can't install Windows on it, at least not in this initial version.

Of course the price is, as you would expect, astronomical. The 80GB edition costs \$2,995; the 160GB, \$7,200; and the 320GB, \$14,400.

Plextor PX-Q840U

The trouble with movie streaming and other on-demand services is that when the credits roll, you have no physical copy of the film you watched.

Plextor aims to help. Its new USB 2.0 DVD burner, the PX-Q840U, lets you create a DVD copy of a streaming movie you've bought online. The "Q" stands for Qflix, an innovative download-to-DVD system. Using Roxio Venue software for Windows XP/Vista to connect to CinemaNow.com, you can purchase hit movies, download them, and burn them to discs that should be playable on any player in your home or car. The discs are encrypted with the CSS (Content Scrambling System) scheme traditionally used to slow down piracy of commercial movie DVDs.

Mind you, you do need to buy special Qflix-enabled blank discs to burn CinemaNow.com downloads. Media were already available online at press time for about \$1.20 apiece in five-packs, or roughly six times the price of standard DVD±Rs in bulk. I found examples from Ridata and Verbatim with 8X speed ratings.

At press time, there were 63 burn-to-DVD movies available on CinemaNow.com, with the majority made in the last few years. Most cost \$9.95, with a few \$7.95 titles here and there. Those are discount store prices without the trip.

With a very fast Internet connection, I downloaded and burned "Nacho Libre" in approximately two hours. It was the bare movie with no menus, commentaries, or special features, and in stereo only. The disc played in five players and drives and in four DVD playback programs, although it consistently froze whenever I tried it in an internal DVD burner on the PC connected to the Plextor drive.

The PX-Q840U is a 20X DVD±R, 8X DVD±R DL, and 48X CD-R burner. There's also an internal Qflix model, the PX-806SA, for \$89.99. ■

Benchmark Results

	Fusion-io ioDrive 80GB	2 x 128GB Samsung SSDs
PCMark Vantage	91816	18701
HD Tune Pro		
Read rates, average/maximum (MBps)	553/589	126/189
Write rates, average/maximum (MBps)	452/456	N/A

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I've found that a good book makes a great companion on a long flight or a blustery March day at home. Sony's newest digital reader, the PRS-700BC Reader Digital Book, makes it easy to carry more than 300 (digital) books with you at one time. It's also easy to use, and I became pretty attached to the gadget during my recent trial of it.

At 6-7/9 x 5-1/9 x 13/32 inches (HxWxD), the PRS-700BC is about the size of a slim paperback book. It displays electronic books you load onto it with your PC via the included USB cable and software. As mentioned, the internal memory can store hundreds of books, and the SD (Secure Digital) and Memory Stick Duo slots make room for even more data. (The Reader can also house audio files, such as MP3s, and pictures, which will appear in 8-level grayscale.)

The eBook Library software helped me organize books and other data on the Reader and connect to the Sony eBook Store where I could purchase and download digital books. The Sony eBook Store is large but certainly not all-inclusive. Users browsing for a good read will find a lot to choose from, but someone, such as a student, searching for a specific, obscure text may not find what he's looking for. Your choices aren't limited to the Sony eBook Store, though: The Reader supports the Adobe PDF and ePub formats, so you can buy digital books from a variety of online retailers.

An E-Ink Display

Like other digital readers you'll find on the market today, such as the Amazon Kindle, the display isn't just a smaller version of a laptop display. Rather than a mini-LCD, the PRS-700BC uses E-Ink technology, which is intended to look more like real paper than a computer display. The technology also uses less power than an LCD (Sony claims up to 7,500 continuous page

turns on a single charge for the PRS-700BC). In my experience, the display was easier to view for long periods of time than the computer screen I look at all day at work. This is due in part to the fact that the white of the "page" on the Reader isn't a bright white. It's similar to the level of contrast you'd find in a printed newspaper. I found this made for a softer reading experience, though some might find the low contrast actually makes it more difficult to focus on words.

There's a two-level LED (light-emitting diode) built in around the edge of the screen, which made it easier to read in low light. Users can also increase the text size up to XXL, which should make reading comfortable for most people. With the setting at XXL, the Reader only fit about 30 words on a page, however, so you'd be turning the page frequently. Adding to the minor annoyance of having to turn the page often is the fact that, with each new page, the screen flickers briefly as the E-Ink reconfigures to display the new text. At certain angles, the Reader picked up some glare, but all in all it made for comfortable reading.

A Touchy New Screen

The main upgrade with the PRS-700BC compared to earlier versions of the Reader is a touchscreen display. This feature made it seem more like a regular book, as I could turn the pages with a slide of my finger or the included stylus. The touchscreen also let me bookmark a page and use an on-screen keyboard to add notes to a highlighted portion of text or search a book for a word or phrase.

The PRS-700BC also features a new button layout with controls for turning the page back or forward (so you don't need to smudge up the touchscreen with fingerprints), a Home button, a Search button, a Zoom button, and a button to call up a set of configuration options.

Altogether, the PRS-700BC combines two things I like very much: gadgetry and books. The obvious convenience of carrying around more than 300 books in an uncomplicated device makes it a tempting purchase, but at nearly \$400, potential buyers will have to weigh how much the convenience is worth to them. ■■

The Great Conversion

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For years, I've meant to take the closetful of cassettes and albums I bought, borrowed, and inherited up until the 1990s and convert them to digital music I can listen to on my modern MP3 players, computers, home-theater system, etc. Converting analog music (LPs and cassettes) to digital files (MP3, WAV, etc.) using a computer and home audio equipment has been possible for years—provided you knew something about sound cards, audio and computer cables, connections, amps and preamps, and audio recording software. Today, turntables/cassette players with USB connections have simplified matters, and retro-styled turntables with CD burners built-in can burn LPs (and usually tapes) to disc. Still, these options usually start at \$150 and mean clearing space for yet another device.

If you already have a tape player or turntable with RCA jacks (red and white), Honest Technology's Audio Recorder 2.0 Deluxe is not only a money-saver; it makes readying your computer to turn albums into MP3s as easy as connecting two cables (takes a minute, tops). Better, the software's Easy Wizard mode essentially holds your hand before, during, and after the conversion process, which requires moving through four illustrated steps. (If you have a radio/cassette player with headphone jacks but not RCA jacks, an included 3.5mm headphone-to-RCA adapter worked in my tests, even with a 1/4-inch stereo headphone adapter attached.)

Setup boils down to connecting one end of an RCA cable (included) to a turntable/tape player and the cable's other end to the Muzbox, a BlackBerry-sized brick the Audio Recorder includes, that does the analog-to-digital conversions. A USB cable (included) connects the Muzbox to your computer (Windows Vista/XP). That's it. I used a late-1980s Pioneer turntable and cassette player and Vista and WinXP computers in my tests. Both operating systems recognized the Muzbox without a driver installation. Before

recording and converting, Easy Wizard walked me through a volume level test that aims to prevent distortion and a Noise Reduction Level test to prevent hisses, pops, and crackles. I then named the recording, chose a location to save it, and clicked Record. A blue LED on the Muzbox let me know conversion was a go.

Audio Recorder automatically splits recordings into tracks based on the quiet spaces it detects in albums or tapes. The software also supports ID3 tags, making timed recordings (otherwise, you manually stop recordings), and burning albums or tapes straight to audio or MP3 CDs (64Kbps to 224Kbps). There's also an Advanced mode that adds a slightly different interface and tools for manual track splitting, noise reduction, volume normalizing, and amplification, but Audio Recorder is designed to be easy to use, and it is.

I converted about 50 songs on tape and vinyl to MP3 and WAV files, starting with all the songs on Van Morrison's "Astral Weeks" on cassette. Although Audio Recorder converted and split the songs without problem, I had to rename the files, as it saved them as "Van Morrison Astral Weeks 1," "Van Morrison Astral Weeks 2," etc. During playback on MP3 players, a home-theater system, PCs, cell phones, laptop speakers, and other gear, the audio quality of the converted files couldn't match, say, that of an MP3 ripped from a CD or a download from iTunes, especially where consistently strong volume levels are concerned. My converted MP3 of Morrison's "Sweet Thing," for example, didn't contain the same charge and energy in Morrison's voice and instruments as an MP3 I purchased. A conversion of Zeppelin's "The Rain Song," meanwhile, lacked the lushness and drive in the rhythm section of a purchased MP3.

Truthfully, I set my expectations for the Audio Recorder low before unpacking it, wondering if it could make converting albums to MP3s easy enough to entice average users. I'm pleasantly surprised at how well it does just that. Setup is two-cable easy, the software is nearly self-sufficient, and the file quality rates satisfactorily good (but not great). Overall, unless you only accept the best, the files are certainly worthy of playing on an MP3 player, dock, PC, etc. Considering that replacing my tapes and albums with CDs or downloads would easily cost hundreds, Audio Recorder 2.0 seems a bargain. ■

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I'll be the first to admit that I can get carried away snapping photos. I have photo albums full of prints, shoeboxes packed with memories, picture frames all over my apartment, and a stack of CD-Rs (CD-recordables) filled with mystery images. (That's 11 albums, four shoeboxes, 27 frames, and 13 discs. But who's counting?) My hard drive is also full of photos—546 photos, to be exact. I know the photos are there, but no one else does.

I decided a digital frame might be the answer to my problem. I tested two frames that offer a mix of features: the Westinghouse DPF-1411 and the ViewSonic DPG807BK. Both are simple to set up—attach the stand, plug the AC adapter into an electrical outlet, turn the power on, and you're ready to roll.

ViewSonic DPG807BK

The 8-inch DPG807BK is a nice-looking frame with a piano black finish, and it offers 512MB of internal memory to store photos, music, and video. The frame's standout feature is ViewSonic's SwiftTouch technology, which includes controls along the bottom of the frame that illuminate when touched. You can transfer photos to the frame from your PC or flash drive using USB 2.0, or you can use the 6-in-1 memory card reader that supports most of the popular memory card formats. The DPG807BK supports JPEG (Joint Photographic Experts Group) and BMP files for photos and M-JPEG (Moving-JPEG) and MPEG-1/4 (Moving Picture Experts Group) files for videos. It also supports MP3s so you can upload music to play during slideshows.

The frame's 800 x 600 resolution and 500:1 contrast ratio provided clear, vibrant images. Navigating my way around the controls took some getting used to; I often pressed the wrong control and had to start over from the main menu. But with a little practice—and the help of an OSD (on-screen display)—I eventually found my way around. The frame's

functions are pretty basic; you can browse thumbnails to select a single image, or you can display a photo slideshow with random transitional effects. The DPG807BK also includes a clock, alarm, and calendar.

Westinghouse DPF-1411

The DPF-1411 is a 14.1-inch frame, which is one of the biggest digital frames I've seen available, but the extra inches come with a higher price tag. The DPF-1411 has a 1,200 x 800 resolution and 128MB of internal memory. It doesn't have touch controls—a feature I missed (it has buttons on the side of the frame). There is a mini USB port for transferring photos (JPEG) and videos (AVI [Audio-Video Interleaved], M-JPEG, and MPEG-1/4) from your PC and a USB port for inserting a flash drive, but it doesn't support audio files for adding music. There is also a built-in memory card reader that accepts most memory card formats.

Overall, my photos looked clear but not quite as bright as they did on the DPG807BK. One of this frame's coolest features is the ability to display up to four multiple images simultaneously using Westinghouse's MosaicView technology. In addition to viewing individual pictures and transitional slideshows, you can also set the frame to Random Picture Shuffle—a feature that many frames don't include. The DPF-1411 is also wall-mountable, although I am not sure anyone would want to mount a frame that has a power cord coming down the back side.

Other digital frames may offer additional features, such as different styles and colors, swappable faceplates, a remote control, and built-in Wi-Fi capabilities (a great feature if you want to transfer photos to the frame via a wireless network). If you're considering one, be sure to determine which features are most important to you.

If you aren't as shutter-happy as I am, then you may not have as much use for a digital frame. However, I found the convenience of displaying all my photos on a single frame (not to mention the time and money saved on making prints) well worth the investment. It may have taken me 11 photo albums, 27 picture frames, and 546 digital files to realize it, but I think it's time to set my photos free. After all, photos are meant to be seen. ■

Head-To-Head: GPS Devices

GPS Devices For Under \$500

The time has come to throw away those outdated, inefficient paper maps. GPS (global positioning system) devices aren't exactly new to the consumer electronics market, but more consumers are purchasing them after realizing the benefits of having voice-guided turn-by-turn directions that keep you from having to take your eyes off the road. And as these devices grow in popularity, the price of feature-rich units is becoming more reasonable for consumers, with many devices costing less than \$500. This article outlines a few GPS devices you can purchase for less than \$500 that still have all the features a consumer needs for a portable automotive GPS device.

Standard Features

GPS devices under \$500 will have some similar features. Most GPS units will come with a preloaded map, but you will need to purchase some maps. For example, you might purchase a GPS unit with a preloaded map of the United States but then need to purchase an extra Canadian map for your annual fishing trip. Most GPS units will either require you to download maps from the Internet and store them in the device's internal memory, or the device will support the use of memory cards with maps on them.

According to Jessica Myers, senior media relations specialist for Garmin, most automotive GPS devices will feature voice-guided turn-by-turn directions, among other features that were once considered luxuries on GPS units. Most consumers also consider features such as text-to-speech

(the device speaks the street names and destinations) a must-have for their GPS device, says Myers, while other feature preferences depend on the person buying the unit.

"It's really going to depend upon the individual and where they live. A lot of consumers in major cities consider [live traffic updates] a must-have," Myers says. She also notes that, "This is great if you live in a major city. Obviously you know how to get to and from your house to your office but you don't always know what construction or traffic is going to be on your way."

A feature often overlooked by consumers who live in states that border Mexico or Canada (or those who often travel overseas), says Myers, is support for maps in those countries. Without

"A lot of consumers in major cities consider live traffic updates a must-have."

—Jessica Myers, senior media relations specialist, Garmin

those maps, you will not be able to use your GPS unit in those countries. According to Myers, consumers should consider how much traveling is done outside of the United States before purchasing a GPS unit with preloaded maps.

Additionally, GPS units will likely come with automatic reroute (which will change the route to your destination if you miss an exit, for example),

along with support for (but not necessarily free) live traffic updates to steer you away from congested traffic or construction sites. You can also usually switch the preferences to find the fastest or the shortest distance or avoid toll roads and carpool lanes.

Check the specifications of the unit before you purchase it to establish whether or not a GPS unit has these features.



Garmin Nuvi 755T

GARMIN NUVI 755T

Lane Assist technology is one of the most recent additions to Garmin's line of automotive GPS devices, and it is one of the best features in the Nuvi 755T. As you are driving on a busy four-lane freeway, it's helpful to know when and if you need to merge into a different lane. Otherwise, you could see your exit go whizzing by from three lanes away.

In addition to lane navigation, the Nuvi 755T features an FM transmitter, which gives your device the ability to convey audio through your car's FM radio. Its audio features include the voice-guided turn-by-turn directions and a built-in MP3 and audio book player.

The Nuvi 755T includes several other features that you will see on almost all other GPS devices. GPS units

BUYING TIPS

- If your state has a law that requires the use of a hands-free device in conjunction with your mobile phone while driving, strongly consider a GPS device with Bluetooth capabilities. You can pair your Bluetooth-enabled phone to your Bluetooth-enabled GPS to make phone calls and perform other tasks while you are on the road. The GPS will work like a speakerphone and helps you be a safer driver.
- Check to see if the manufacturer of your GPS device charges for map updates. As you go along, eventually your map will become outdated because of construction projects and other things. Some manufacturers allow one free yearly update, but each manufacturer is different. You can find this information through the manufacturer's Web site.

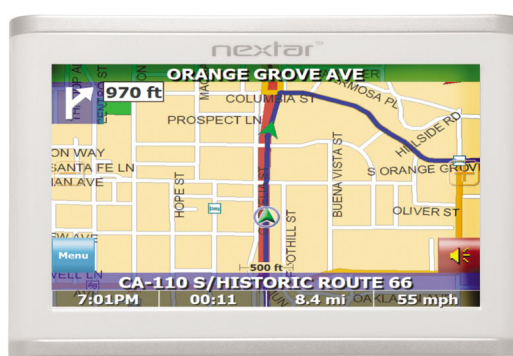
will likely feature millions of POIs (Points Of Interest), which include hotels, gas stations, restaurants, car rental places, and any other place you need to find when you are on the road in an unfamiliar area. You will also usually be able to save routes to your favorite places (which are sometimes referred to as waypoints) and tracks (a log of where you have been recently).

MAGELLAN ROADMATE 1430

The RoadMate 1430 has all the features you would expect on a GPS unit, including voice-guided turn-by-turn directions, text-to-speech, and technology that automatically recalculates your directions if you miss a turn or an exit. The most useful feature of the RoadMate 1430 comes after you enter your destination of choice when the RoadMate 1430 prompts you to decide if you want your route to be calculated by the quickest estimated time of arrival, the shortest distance, the least or most use of freeways, or to avoid toll roads. This is unique because other GPS units



Magellan RoadMate 1430



Nextar I4-BC

require you to delve into the device settings before you decide on a destination, and the setting you choose is always used to calculate routes.

The RoadMate 1430 also includes automatic spelling (which can figure out the name of the city and street after entering just a few letters), which is another feature often seen on other GPS units, along with the ability to find your exact location, including the coordinates. This feature is crucial if you need to call a tow truck or an ambulance and you are not near any notable landmarks.

NEXSTAR I4-BC

The Nextar I4-BC has incorporated features not normally seen at such a low price point. For example, the I4-BC comes with a back-up camera that is installed onto the back of a car so the user can obtain a better view of what's behind the car before backing up. The I4-BC also includes a speed alert, which lets you know when you are speeding. This is especially helpful for areas with constantly changing speed limits. In addition to these features, the I4-BC supports photo viewing, and it has an MP3 player.

Thanks to the Shortcuts option, the I4-BC provides the quickest routes to

FEATURES

	Garmin Nuvi 755T	Magellan RoadMate 1430	Nextar I4-BC	TomTom XL 330-S	Sony Nav-U44
Battery Life:	Up to 3 hours	Up to 3 hours	Up to 2.5 hours	Up to 3 hours	Up to 4 hours
Screen Size (diagonal):	4.3 inches	4.3 inches	4.3 inches	4.3 inches	3.5 inches
Preloaded Maps:	North America	North America	United States and Canada	United States and Canada	United States, Canada, and Puerto Rico
Points Of Interest:	More than 6 million	6 million	1.6 million	2.5 million	5 million

BUYING TIPS

- Before you mount your GPS on your windshield, check with your state to be sure such an action is lawful. If you live in one of the many states that prohibit GPS units (or similar devices) from being mounted on windshields, you will have to purchase a dashboard mounting kit or find a GPS that has a dashboard mount included.

POIs, such as ATMs, hospitals, and gas stations. This is helpful when you are in an unfamiliar area but need to find one of these locations as quickly as possible. Unfortunately, the I4-BC does not support live traffic information.

TOMTOM XL 330-S

TomTom's XL 330-S has several different safety features that help you be a better driver and can come to the rescue in times of need. You can set the XL 330-S to alert you when you are driving at speeds higher than the speed limit, or it will sound an alert when you are driving faster than a speed limit that you have set. The XL 330-S will also notify you when you are approaching school zones and places of worship. If you have been on the road for a while, your XL 330-S will signal to you that you might need to take a break from driving for a while, if you choose to enable the feature.

The XL 330-S also has a section of



TomTom XL 330-S

services (called Help Me!) that can be very useful in times of need. The XL 330-S provides you with the phone numbers for emergency services, the nearest fire station, hospital, police station, and car repair service, or even a dentist, pharmacy, or veterinary clinic. Additionally, the XL 330-S provides driving directions to all of these facilities. The XL 330-S even has a first aid guide.

The XL 330-S has other unique qualities, as well, such as the option of left- or right-handed operations, and it plans out walking and bicycle routes in addition to other route preferences.

SONY NAV-U44

The Sony Nav-U44 looks a bit different from the other units, with both Menu and Voice/Position buttons beside the screen (which is slightly smaller than the others). The Menu button will take you back to the main menu, and the Voice/Position button will take you back to the map of your current location.

Additionally, the Nav-U44 features maps that aren't as bright and colorful, looking more like grids. The Nav-U44 does have a dual-view feature, however, in which the display



Sony Nav-U44

is split, showing a detailed image of the upcoming maneuver on one half and a broader view of your position on the other half of the display. The map on the Nav-U44 does show icons of POIs, such as hotels, restaurants, and more. You can set your preferences to show one type or all POIs on the map.

Find Your Own Way

Clearly there are many types of GPS devices out there, but Myers says everyone can find one that suits his particular needs.

"I oftentimes tell people to go to a store where you can use or play with different devices," Myers says. "There are hundreds of GPS devices out there. . . . If you go to a store where you can get some hands-on time with [a GPS unit], then you can decide which device is easiest for you to operate."

In addition to the standard features mentioned in this article, be sure to keep a lookout for other common features that are useful to consumers, such as Bluetooth. ■

BY TESSA WARNER BRENNAN

GPS DEVICE INFORMATION

	Price	Company	Contact Information	URL	Notable Features
Nuvi 755T	\$499.99	Garmin	1-800-800-1020	www.garmin.com	FM Transmitter; Lane Navigation
RoadMate 1430	\$399.99	Magellan	1-800-707-9971	www.magellangps.com	Interactive POI Icons
I4-BC	\$260	Nextar	1-888-849-0846	www.nextar.com	Speed Alert; Back-Up Camera
XL 330-S	\$299.95	TomTom	1-866-486-6866	www.tomtom.com	Emergency Numbers; First Aid Guide
Nav-U44	\$249.99	Sony	1-877-865-7669	www.sony.com	Dual-View Screen; Integrated POIs

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Adobe never optimized Premiere Elements for beginners. Instead, this video-editing and authoring product has offered a rich array of features with a midrange level of sophistication—and complexity. With each release, Adobe has nudged the product to a more user-friendly stance. With this edition, Adobe skipped from version 4 to 7 to bring it in line with its sibling, Photoshop Elements. While the update is less revolutionary than the numeric jump suggests, the product has added some important functions—and a few bonuses for the creatively challenged. Consequently, it will appeal to techie consumers on a budget, as well as amateurs who are eager to learn.

Up To Par

The most significant upgrade is support for AVCHD (advanced video codec high definition), the HD (high definition) format that is rapidly becoming a standard for consumer-grade camcorders. Most of Premiere Elements' competitors support AVCHD, and we don't see how the product could succeed without it. The wait was worth it, because Adobe

minimized the performance drain common with this format. You'll still need a fairly hefty system to run the program—1.8GHz processor minimum (don't expect nimbleness at this level), dual-core for AVCHD; up to 2GB of RAM (for HDV [high-definition video], AVCHD, or Blu-ray). Premiere Elements will auto-detect if you have a single-core processor, or you can customize your install to omit the HD components (and reduce the install size of 4.6GB) if you don't need (or can't run) them.

Overall, installation is easy, if lengthy, with Adobe working in the background and not requiring you to shut down other programs. At completion, Setup prompts you to install QuickTime (if you don't have it) and warns you that some formats (including AVCHD, DVD, and Blu-ray) require product activation before you can work with them.

Easy Does It

Premiere Elements' new automated features are a mixed bag, but we like them. One—InstantMovie—automatically edits and adds transitions, music, and other effects based

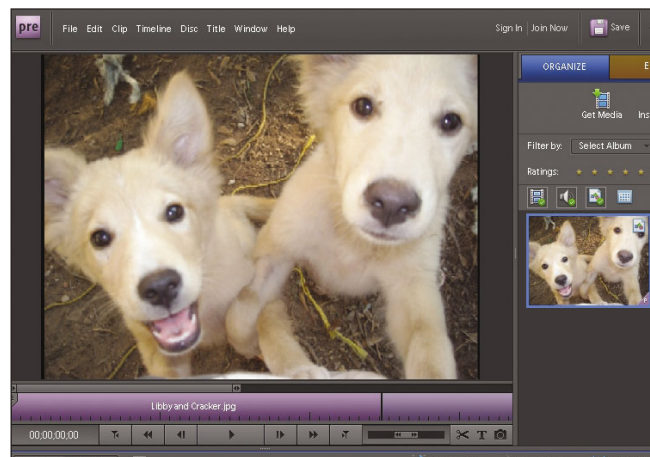
on one of the almost two dozen themes you select. It's not exactly Hollywood, but it does

work. A function within this feature, which you can also access via the Smart Tags option, analyzes your footage for problems such as blur or shakiness. Smart Tags analyze for content, as well as quality, tagging clips and detecting scene transitions based on categories you select. You can then sort your clips based on these tags.

Another automated feature, Video-merge, helps key (identify and drop out) the background of a video so you can superimpose the foreground on other footage. In the demo Adobe shared with us, a little girl playing a plastic guitar became a rock star surrounded by screaming fans. The concept is great, but getting it just right is a bit tricky. A third new user-friendly feature, previously available as an add-in, is SmartSound, which generates copyright-free soundtracks from one of 14 music libraries.

These novice-level perks may not work perfectly, and we suspect users will save some of them for quickie editing jobs when they're late for Grandma's house. The Premiere Elements interface is more user-friendly than it was previously, although it is a bit convoluted with the product's upload site (Photoshop.com; automated backup and online bonuses with 2GB of storage space free; you can buy more). Nevertheless, it's one of the best consumer-level video editors around, with support for YouTube and photo-sharing sites, plus good tutorials. If simplicity of use and interface are must-haves, you're looking at the wrong product. The meat of Premiere Elements lies in its advanced capabilities. ■

Key Features:
Support for popular high-definition format AVCHD and more novice-level features than previous versions.



BY JENNIFER FARWELL

Clear Your Hard Drive

WipeDrive 5



Windows 2000



Me



WinXP



Vista



Mac



Linux

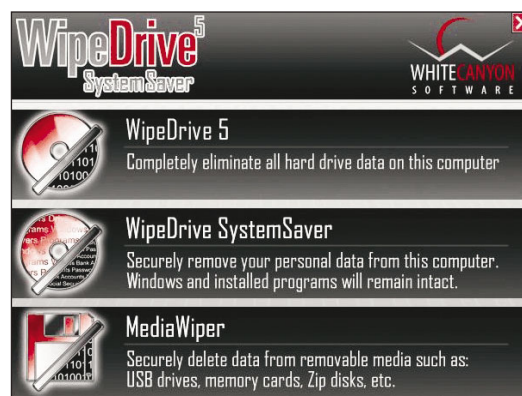
\$39.95 with Media Wiper | WhiteCanyon Software
(800) 920-8162 | www.whitecanyon.com

If you're selling a computer, or if you have experienced severe problems that reformatting a drive doesn't resolve, you may need to wipe your hard drive. Deleting files from your hard drive doesn't erase them and neither does formatting the drive itself. These actions only erase the data that tracks where file bits are stored. WipeDrive completely eradicates all traces of files, writing over them with the digital equivalent of "white noise." According to company representatives, it's one of only five such programs approved by the U.S. Department of Defense.

We found WipeDrive easy to use. It runs from a CD and lets you decide which drive to overwrite (if you have more than one), how many times to wipe it (the more times, the lower the

odds of data recovery), and whether to confirm the data is gone. It also guides you through reinstallation of Windows after you wipe a drive. (To avoid the hassle of reinstalling Windows, you can upgrade to WipeDrive 5.0 with System Saver, which keeps the operating system intact.)

WipeDrive wipes only entire physical hard drives, but it comes bundled with MediaWiper, which can wipe drive partitions and removable drives. If you download the product, you'll need to create the install CD (the company's Web site tells you how). If your PC is inoperable,



Key Features: It's Department of Defense-approved, and the site offers helpful tutorials.

you may also need a system boot diskette to get going. ■

BY JENNIFER FARWELL

Coordinate Data

GoodSync Pro

\$29.95 | Siber Systems
(703) 218-1851 | www.goodsync.com



WinXP



Vista

So many of us store data in numerous locations—flash drives, notebooks, desktops, smartphones, and online—that it's easy to scatter multiple versions

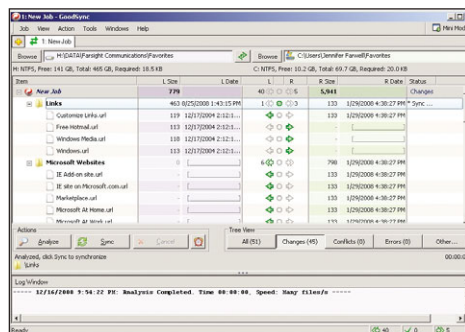
of files everywhere. GoodSync is a handy solution to this problem, making quick work of synchronizing files among an array of data repositories (including secure file transfer sites and Windows Mobile and CE devices). GoodSync installs quickly without requiring you to shut down or restart the program. After installation, it presents you with a dual-paneled explorer-style interface, letting you browse to the locations you want to sync.

Once you select two folders or locations, GoodSync will analyze them and present you with the contents—and recommended sync paths (which you can edit if you choose). Before syncing, you can

mark files or folders to skip, create exclude or include filters, and perform other tweaks. GoodSync can save your sync sets and rerun them on your schedule, making it great for backup, and replicate a set of changes or deletions across numerous data sources.

GoodSync does not examine the data inside files, so it cannot compare or extract file components (such as contacts or email messages within an Outlook data store). Furthermore, setting up the program and familiarizing yourself with its features can take a little time. Nevertheless, if you maintain multiple data stores, you'll quickly reap the benefits of your efforts. ■

BY JENNIFER FARWELL



Key Features: It's highly configurable and provides user-controlled synchronization of files. It also supports varied data stores and media types.

Migrate To A New PC

SoftRescue Pro

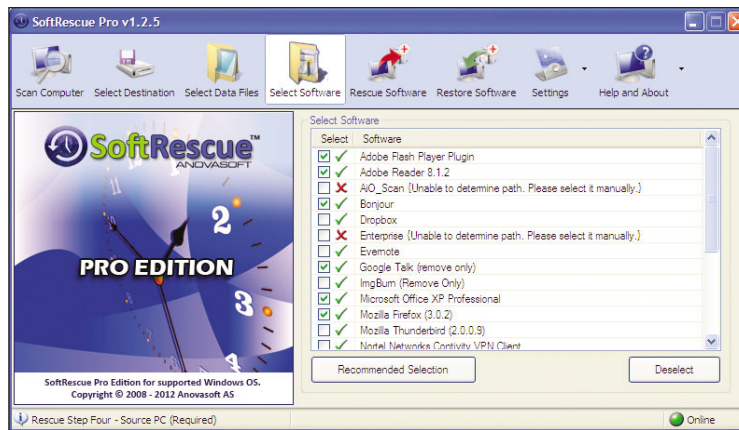
\$69.95 | Anovasoftware
support@SoftRescue.com | www.anovasoftware.com



You just can't get around buying a new PC every once in a while. And while that new machine might be shiny and fast, it lacks much of the personal work environment found on your old computer. You likely have a host of programs and particular settings you need, not to mention all the data you have created and saved on your old PC.

There are two solutions to the problem of migrating data, settings, and programs from one computer to another. First, you can do it essentially on your own. You can gather up all of your important data (work files, photos, etc.) and either burn it to a DVD or transfer it over a network to the new computer. Then you can track down all of your software installation CDs and load all of your favorite programs onto the new PC. That's fine, but it can be time-consuming if you have a lot of data or programs. You're also bound to lose a lot of your customized settings.

The second method is to use software that can do the job of transferring your valuable files and programs to another computer automatically. SoftRescue Pro from Anovasoftware is one of a couple such applications that make the migration pretty simple. We found that it has a basic interface and a set of steps that is easy to follow.



Notable Feature: It transfers both data and programs from one PC to another, so you won't have to deal with the dialog boxes, disc swapping, and other menial tasks that installing all of your software would otherwise entail.

Out With The Old

You will need to install SoftRescue Pro on both the old and new machine. First, you should open up the program on the old PC. Across the top of the application window you will see a string of buttons that you will need to work your way through from left to right. Click the first button in the string to scan your computer for programs and the second to select the drive and folder where the archive created by SoftRescue will be temporarily stored. If you have a big external drive, that makes it easy to share the file later with the new PC.

Next, select from a list of which data files (such as the My Documents or My Pictures folder) and which programs you would like to migrate to the new computer. If there are some programs you don't need, you can simply skip them. Choose carefully, as eliminating unnecessary programs will make the process faster.

After you do that, another click starts the process of saving all of those files into one compressed archive file. This part can take a while—maybe hours, depending on how much data you have on your hard drive.

In With The New

When the archive is complete on the old computer, you run the program on the new PC, pick the Restore option, and browse to

your big archive file. Wait a while—again, this could take a considerable amount of time—and SoftRescue attempts to rebuild all of your programs so that they work just as they did on the old computer.

One of the best parts about this process is that all of the necessary interaction takes place at the front end. You just set up the program and let it do its work.

The results aren't perfect. Some programs may still require you to insert installation discs before they will work correctly. But most should run as expected.

SoftRescue isn't particularly cheap at about \$70. Also, keep in mind that SoftRescue requires either a network connecting the two PCs or a large external drive to make the transfer (rather than including a USB cable for directly transferring files from one machine to another). ■

BY ANNE STEYER PHELPS

Wipe Out Sensitive Data

DriveScrubber

\$29.95 | iolo
(323) 257-8886 | www.iolo.com



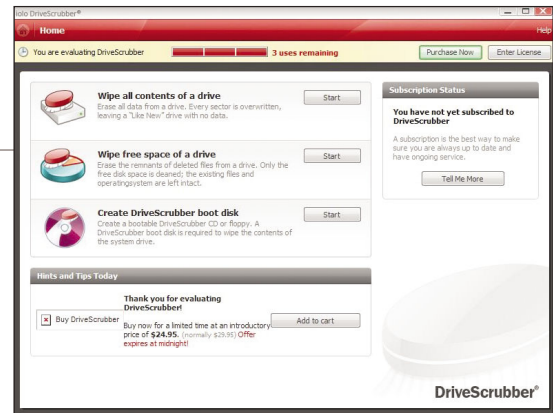
Deleting a file by conventional means does not necessarily get the job done. Using the Recycle Bin opens up free space on your drive, but that free space is actually full of old file fragments. Unless the same spot on the disk happens to have been overwritten by a new file, the former files remain accessible to various file recovery programs. If you're selling, donating, or junking an old computer or drive, that's an identity theft hazard.

DriveScrubber 3 promises to truly erase drives by writing over them again and again with binary gibberish. The program features three main tools in a clean, simple interface. First, you can scrub clean an entire drive other than your system drive. This is the best choice to erase every bit of data from an external

Notable Features: The clean, straightforward interface makes it simple to delete lingering personal data.

hard drive, network drive, or additional internal drive. Second, you can wipe all of the free space on a drive to ensure that it truly is blank. Third, you can create a boot disk with a version of DriveScrubber installed that can be used to erase your main system drive.

DriveScrubber 3 claims to meet Department of Defense standards for overwriting data so completely that it cannot be read even with an electron microscope. We didn't have an electron microscope on hand to test that



out. However, the program seems to foil typical "undelete" applications, at least, and its straightforward operation will have you erasing data permanently in just a few minutes. ■

BY ANNE STEYER PHELPS

Get Creative

Print Artist Platinum 22

\$49.95 | Nova Development
(818) 591-9600 | www.novadevelopment.com



Print creativity software lets those of us who are not graphic artists dabble in the print arts and create greeting cards, scrapbook pages, newsletters, and much more. With Print Artist Platinum's more than 15,000 professionally designed templates and more than a quarter of a million graphics, the newbie designer

can go a long while before designing from scratch.

Perhaps it's this enormous collection of projects, graphics, and fonts that caused installation to move at a snail's pace. Once installed, everything loaded fine, and the application aptly handled jumping to and from options. The interface isn't all that intuitive, but the Help menu and the paper manual both offer a lot of useful info. After playing with it a bit, you'll find the right-click context menus often offer the necessary commands you can't find elsewhere.

Print Artist touts three simple steps: Select It, Personalize It, and

Print It, and that's spot on. Beyond adding personal information to templates, you can also swap out graphics in the predesigned layouts pretty easily, though most are of the cartoonish variety—we didn't see a lot that was sophisticated or subtle. One major drawback with the graphics library is that you cannot do a general search—instead you have to first specify a category.

Consumers interested in creating scrapbook pages, greeting cards, and crafts with kids are likely to be perfectly satisfied with Print Artist Platinum, particularly if they prefer to rely on predesigned layouts. ■

BY ANNE STEYER PHELPS



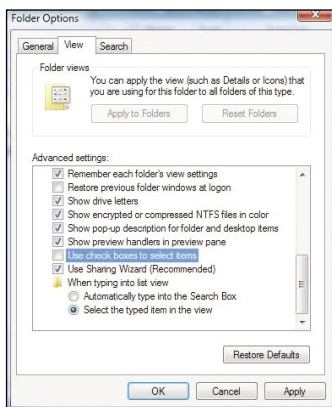
Notable Feature: A plethora of predesigned layouts cover nearly any basic print creativity need.

Windows Tips

Look Mom, One Hand! (Vista Only)

Highlighting several nonadjacent files in Windows is usually a two-handed process—you hold down the CTRL key with one, while using the mouse with the other to click the files you want. (Try doing that while sipping your morning coffee!)

Luckily, Vista offers a feature that lets you select multiple files using nothing but the mouse. Starting from an Explorer window, click Organize and then Folder And Search Options. Now click the View tab and under Advanced Settings, scroll down to



By activating Vista's Check Box feature, you can select multiple files without using the keyboard.

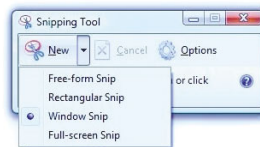
find the Use Check Boxes To Select Items option. Put a check there and click OK.

Now a box will automatically appear next to any file you place the mouse cursor over. Checkmark the box, and the file will stay highlighted even as you move on to select other files, and checking the box next to the Name column in an Explorer window will select all files in a folder. Check boxes will appear for files on the Desktop, as well. ■

Want A Vista Screen Capture? Get Snippy!

If you ever need to grab a snapshot of all or part of your Vista Desktop (in any version except Home Basic), there's no need to fiddle with the PRINT SCREEN key or third-party software like you need to with WinXP—just use the built-in Snipping Tool.

You can find the Snipping Tool by searching for "snip" from the Start menu. When you run it, clicking the arrow next to the New menu will let you capture a single window, the full screen, a rectangular piece of it, or (by using the free-form option) any oddly shaped part of the screen you want. After selecting the capture



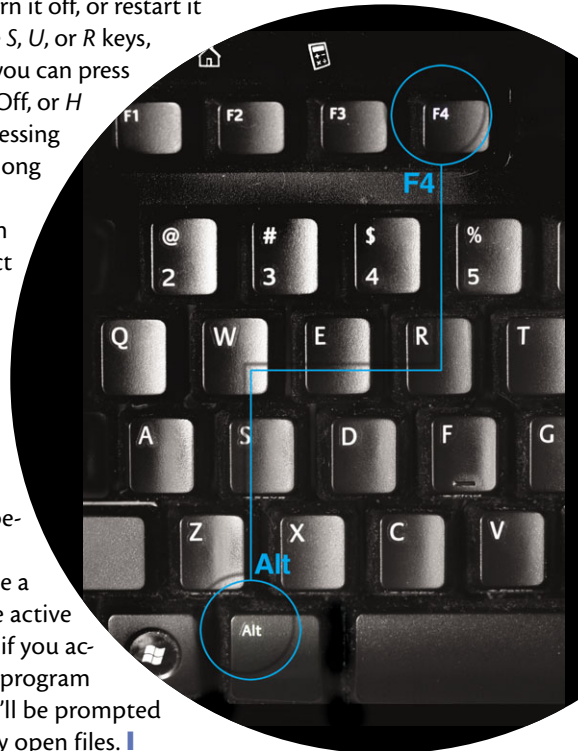
All Vista versions except Home Basic provide a handy tool for capturing a snapshot of all or part of your Desktop.

area with the mouse, you can use the Tools menu to annotate or highlight your image before saving it or sending it to someone via email directly from the Snipping Tool. ■

Speedy Shutdown In WinXP & Vista

Want a quick way to shut down your PC or put it into power-saving mode without having to click the Start menu first? In either WinXP or Vista, press ALT-F4—a window will appear, and in WinXP, you'll be able to put the computer into Standby, turn it off, or restart it simply by pressing the S, U, or R keys, respectively. In Vista, you can press R to Restart, L to Log Off, or H to Hibernate, while pressing the S key will cycle among three options—Shut Down, Sleep, or Switch User. Click OK to select your option.

Before pressing ALT-F4, you'll want to first make sure there aren't any program windows open—or be sure they're minimized—because this keyboard shortcut will also close a program when it's the active window. Don't worry if you accidentally shut down a program this way, because you'll be prompted to save changes to any open files. ■



Windows News

Windows Vista Ultimate (PRODUCT) RED Available Without New PC



Portions of the proceeds from sales of Windows Vista Ultimate (PRODUCT) RED will help combat AIDS in Africa.

Microsoft is now offering retail buyers its special (PRODUCT) RED version of the Windows Vista Ultimate Upgrade. Previously available only when preinstalled on certain Dell PCs, with Windows Vista Ultimate (PRODUCT) RED, Microsoft aims to help combat AIDS in Africa by donating a portion of the purchase price to The Global Fund (www.theglobalfund.org).

Windows Vista Ultimate (PRODUCT) RED carries the same \$219.95 retail price as the non-RED version and includes a special screen saver plus unique Desktop wallpapers and Sidebar gadgets. It can be purchased from various retailers, while qualified students can pick up a discounted \$64.95 copy from tinyurl.com/6xogbt.

Free Windows Security Software Coming From Microsoft

Microsoft says it's working on new PC security software, code-named Morro, which will be available to consumers at no charge. The new security software will be compatible with WinXP, Vista, and the forthcoming Windows 7 and will be available as a download when it launches in the

second half of this year.

Microsoft's current subscription-based security product, Windows Live OneCare, is being gradually phased out and will no longer be available for retail purchase as of June 30, though purchasers will continue to be able to use the product through the life of their subscriptions.

Report: Windows Market Share Drops Below 90%

Web site monitoring firm Net Applications says Windows' share of the operating system market has dipped below 90% for the first time in years. Data compiled by the company indicates that 89.62% of those connecting to Web sites it monitored in November 2008 used computers running Windows, a roughly 2% drop from a year earlier.

Though trending slowly downward, Windows still maintains a dominant position according to Net Applications data, with 10 times the market share of Mac OS, which had 8.87% in the same month.

Microsoft News

Microsoft Launches New Online Store

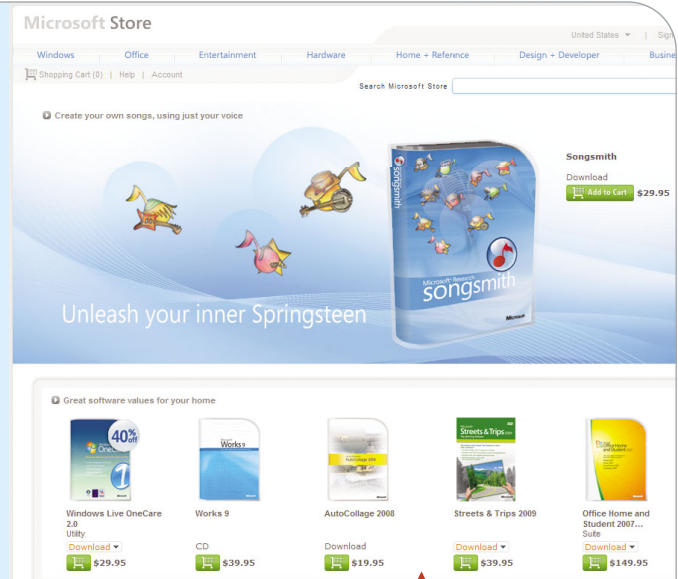
Consumers wanting to research or purchase Microsoft products online now have a new way to do it. The Microsoft Store (www.microsoftstore.com) is designed to be a one-stop shop for all Microsoft consumer products ranging from software such as Windows and Office to hardware such as the Zune and Xbox 360.

All items at the Microsoft Store will be sold for the full MSRP (manufacturer's suggested retail price), but when buying PC software, customers will usually have the option to download their purchases immediately instead of waiting for boxed software to arrive in the mail.

Zunes Get Price Cuts, Permanent Downloads For Zune Pass

Microsoft has dropped prices on all of its flash memory-based Zune music players. The price cuts range from \$10 to \$30, depending on the model—new pricing is \$99, \$139, and \$179 for the 4GB, 8GB, and 16GB Zune models, respectively.

The Zune Pass unlimited music subscription plan has also been enhanced to include permanent downloads. Subscribers to the \$14.99 monthly plan can now choose up to 10 tracks per month that they can keep even after canceling the subscription.



The new Microsoft Store carries media players, keyboards and mice, and Web cams, among other hardware. The store can ship your software to you or make it available for download.



Windows XP

Lock Down Public PCs With Windows SteadyState

installed, the system will be locked down.

Download & Install

Download SteadyState at tinyurl.com/42fmb9.

Robert Heinlein once wrote, “Never underestimate the power of human stupidity.” While certainly a depressing observation, every system administrator can testify to its truth. Luckily, Microsoft offers some protection in the form of its free download, Windows SteadyState (available for both WinXP and Vista). SteadyState lets system administrators set system-wide and user-specific restrictions to help protect against inevitable user error.

SteadyState is especially appropriate for organizations such as computer user clubs (groups of enthusiasts who gather to improve their computer skills) and those that maintain the group’s often small computer labs. We’ll introduce you to SteadyState and show you some of the benefits of this tool.

You need to install SteadyState on every PC in a lab, so we recommend saving SteadyState on a USB drive. To install, simply open the EXE file and follow the prompts.

Global Computer Settings

Once installed, you’ll need to configure SteadyState to lock down your PC. In the middle of the main SteadyState window are the Global Computer Settings. Of all of these options, perhaps the most important is WDP, which you can access by clicking Protect The Hard Disk.

WDP is a key component of Windows SteadyState, so we’ll address it now. However, we recommend configuring and testing the system before coming back and enabling WDP.

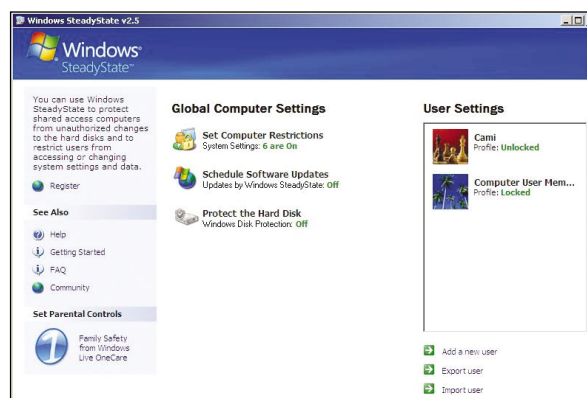
Once enabled, WDP tracks every change made to your C: drive. At preset times, the system reboots and removes changes. Opt to remove changes at reboot, and fixing any mistake caused by user error is as simple as rebooting. When you’re ready to enable WDP, click Protect The Hard Disk and select On. We recommend leaving WDP set to Remove All Changes At Restart. If you select Retain Changes Temporarily, SteadyState will reboot and remove

Prep Time

Before you download SteadyState, it’s best to clean up the PC. If your computer is unstable and has been extensively reconfigured, Microsoft recommends reformatting and reinstalling Windows. If reformatting, make sure you use NTFS (NT file system), not FAT32 (32-bit file allocation table), on the drive or partition that will contain Windows. If you want to use WDP (Windows Disk Protection), a key SteadyState component, you’ll need an extra 4GB of free space on your Windows drive. Microsoft also recommends that you defragment your hard drive before using WDP. If you have the drive space, you can create an extra partition as a shelter from WDP.

If you don’t reinstall Windows, be sure to remove any previous versions of SteadyState, as well as Microsoft’s Shared Computer Toolkit (the precursor to SteadyState).

Install any additional apps and updates to the PC. Make sure everything is the way you want it. Once SteadyState is



The main Windows SteadyState screen lets you set global restrictions on the entire PC, create new user profiles, or set user-specific restrictions.

changes at a preset date and time.

SteadyState does make applying system and program updates challenging. By restoring changes to the Windows drive, WDP essentially wipes out any upgrades. You can get around this manually by clicking Retain All Changes Permanently, installing upgrades manually, and then returning to Remove All Changes At Restart or Retain Changes Temporarily. SteadyState won’t remove changes made in the interim when the system reset. We do not recommend turning off WDP

because WDP has to make a new cache file each time you activate it and this may take a considerable amount of time.

An alternative is to click Schedule Software Updates in the main SteadyState window. To automatically bypass WDP when installing Windows updates, select Use Windows SteadyState To Automatically Download And Install Updates. If SteadyState recognizes your security apps, you can checkmark Security Program Updates to update those programs, as well. If your security programs are not recognized, you can create a custom script to download and install updates. (Creating an upgrade script is beyond the scope of this article.)

Any remaining global restrictions are under Set Computer Restrictions. These options include Remove The Administrator User Name From The Welcome Screen and Prevent Write Access To USB Storage Devices, among others.

User Settings

In addition to global settings that apply to all users, you can set restrictions on specific user profiles. We recommend creating at least one public shared profile, but you can create additional public profiles, each with its own password and set of restrictions.

Create a new account. Click Add A New User in the lower-right corner of the main SteadyState window, provide a username and password (you may leave the password blank), and select an icon for the account. Finally, select a User Location. If you want WDP to protect the integrity of the user account, select the Windows drive (usually C:). Alternatively, if you want Windows to save changes to an account permanently, select another drive, if available, from the drop-down list.

Lock down the account. Once you've created the account, you'll set restrictions for that account. You'll find four tabs: General, Windows Restrictions, Feature Restrictions, and Block Programs. On the General tab, you can set session timers and opt to reboot the system when the user logs off (among other options). We recommend opting to restart the computer when users log off, especially if WDP is set to remove changes on reboot. This combination ensures public accounts are fresh for each new user.

If you want to be able to make permanent changes to the account, make sure Lock Profile To Prevent The User From Making Permanent Changes is not checkmarked. Changes are only maintained if the user profile is on a non-WDP-protected drive and you've disabled this option.

The remaining tabs let you set general Windows restrictions and Microsoft application restrictions and block access to installed programs. There are too many options to cover here, but you can learn about them by clicking

Getting Started on the left side of a SteadyState window.

Once you have the user profile set to your liking, log in to it and test it. Once all the user profiles are working, you can enable WDP.

Export Accounts

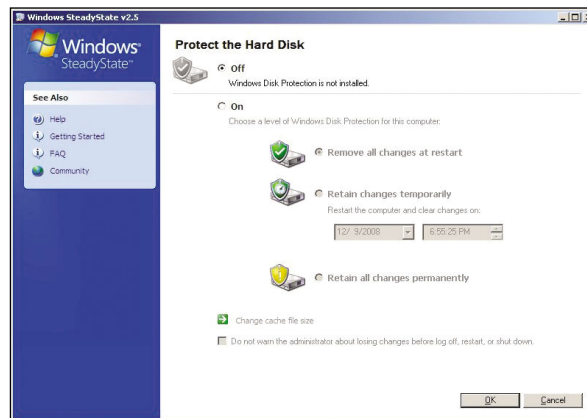
Rather than reconfiguring user accounts on each lab PC, you can export a user profile to a removable drive and import the profile on other lab PCs. To export a profile, click Export User and select a profile from the User Name

drop-down list at the bottom of the Export User box.

Once exported, simply plug the removable drive into the next PC, open SteadyState, and click Import User in the bottom-right corner of the main SteadyState window. Navigate to the removable drive, select the profile you want to import, and click Open. You'll need to specify the account password (if any) to import the profile.

We only had space to touch on the basics of SteadyState. For a more detailed explanation of its features, click Getting Started on the right side of any SteadyState window. ■

BY CHAD DENTON



WDP is perhaps the most important SteadyState feature. WDP monitors changes to the Windows drive and resets the drive at regular intervals. To enable WDP, click Protect The Hard Disk and select On.

SteadyState Family?

Although WDP may be overkill for some family PCs, it can be a helpful tool for preventing configuration changes. Parents can set their accounts up outside of WDP's protection while ensuring that their children's accounts get reset regularly. The danger here is that the family admin

might tire of reconfiguring WDP to make installation or configuration changes.

SteadyState can also help parents control PC leisure time by setting SteadyState to reboot Windows after a shared user logs off and setting session timers for leisure accounts. By creating separate leisure and work pro-

files for children, parents can prevent SteadyState from logging off a child in the middle of a report.

SteadyState offers parents a variety of other useful options. The trick is spending the time to find out what features work for your family and what features require too much work. ■



Windows Vista

Protect Your Computer With Security Center

You know it's important to protect your computer from threats such as viruses and malware, but sometimes that's easier said than done. How do you know if your computer is protected or if it's at risk? Keeping your computer secure can be a tricky process if you aren't familiar with the tools that can help you. One of the most helpful tools is the Security Center in Windows Vista, which makes managing your computer's safety an easy task.

What Is Windows Security Center?

The Security Center is a toolbox filled with the things you'll need to help keep your computer safe from Internet threats or unauthorized changes. It can be accessed by going to Start and the Control Panel, clicking the Security icon, and choosing Security Center. It has four categories called Security Essentials, which monitor different protection tools on your computer. The four categories are Firewall, Automatic Updating, Malware Protection, and Other Security Settings. We'll detail each of these tools later in this article.

The Security Center in Windows Vista offers some improvements over the previous Security Center found in Windows XP. For starters, everything you need to monitor the protection of your computer is found in one window, making it easier to keep track of your security tools. Vista's Security Center also features a new layout, which is easier to navigate. Each Security Essential tool can be expanded for more information or to configure options, and it's easy to determine the status of each tool with the new color-coding scheme. Green means everything is operating as it should, while yellow means that you need to make changes. Red signifies that there is an error, and you should investigate immediately.

Security Center also features multiple alerts that keep you on top of your computer's safety. Any time your computer needs an update or when an important security feature has been turned off, Windows will alert you with a pop-up message or icon. You can even specify how you want Windows to alert you by clicking the Change The Way Security Center Alerts Me link in the menu found on the left of the Security Center window.

In the next sections, we'll break down each of the Security essentials tools and their contents to help you better manage your computer's security.

Firewall

The firewall monitors all information that comes from the Internet and, depending on your personal access settings, either blocks or allows certain information from reaching your computer. In most cases, the firewall should be enabled.

You can determine the status of your firewall by noting the color of the Firewall bar in the Security Center. Green means the firewall is on and running properly. If the firewall is off, the bar will be red and be accompanied by a red button with the word "Off" next to it.

You can manage the Windows Firewall settings by clicking the Windows Firewall link on the left side of the Security Center window. Click Change Settings to turn the firewall on or off, or you can allow a particular program access to the Internet by choosing the Allow A Program Through Windows Firewall link found on the left sidebar. If you're using a firewall other than Windows Firewall, you will manage your settings from that firewall's separate menu.

Automatic Updating

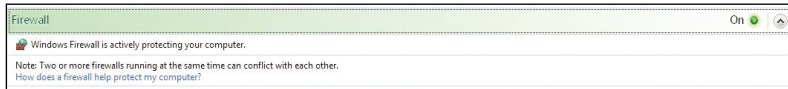
This section lets you monitor the status of Automatic Updating. By default, automatic updates are turned on, so you don't have to worry about downloading and installing updates yourself. Updates are important for keeping your computer current with the latest fixes and enhancements. In some instances, however, you may need to change the automatic updating settings. To do so, choose the Windows Update link found on the left sidebar of the Security Center.

Using the options found on the left side of the window, you can manually check for any updates that might be available, change the way Windows installs updates, or view the update history.

Malware Protection

This section checks to see if your computer is running an antivirus program and whether or not the program is up-to-date.

If you don't have an antivirus program installed on your computer, Security Center will alert you in a couple different ways. The Malware Protection bar will be yellow



Firewall: In most cases, your Firewall should be turned on so it can block malicious files coming from the Internet.



Auto Updating: Keeping your computer up-to-date with the latest enhancements and fixes is a good way to help combat possible security threats.



Malware Protection: Any time your antivirus software requires attention, the Malware protection bar will turn red and Windows will notify you with a shield-shaped icon on your Taskbar.



Other Security Settings: You can customize the way your computer interacts with the Internet by configuring Internet settings and permissions.

or red and may provide a message such as “Check Settings,” which indicates that an action must be performed to ensure that your computer is running securely. If you expand the bar for more information, you’ll find that the Virus protection option reads “Windows did not find antivirus software on this computer,” and has a red circle with the words “Not found” next to it.

Security Center makes it easy to add an antivirus program to your computer. Simply click the Find A Program button, and you’ll be directed to the Windows Vista Security Providers page, which lists many antivirus software programs that you can purchase. Many antivirus programs require you to pay a yearly fee, but some offer a free trial or, in some cases, a limited version of their software free.

If you have an antivirus program installed and it has the latest updates, the Malware protection section will be green. If you click the section and expand the options, you’ll see that there is a green light with the word “On” next to your installed antivirus program and next to Windows Defender.

Windows Defender is the default protection on your computer. Windows Defender helps to keep your computer secure by detecting and removing spyware and malware. Although it is a useful tool, it can’t offer the same amount of protection that a full antivirus program can and should be used in addition to dedicated antivirus software rather than as a substitute. To change the Windows Defender settings, you’ll have to click the Windows Defender link found on the left side of the Security Center window. You can view the history of scans performed on the computer or configure when and how you want Defender to scan.

Other Security Settings

This section contains other security tools that are helpful in warding off potential attacks. From here, you can

monitor Internet security settings and the User Account Control settings.

You can change your Internet settings by clicking the Internet Options link on the left side of the Security Center window. Some useful Internet settings to note are the Security and Content tabs. Under the Security tab, you can specify which Web sites you would like to allow or restrict access to by selecting Trusted Sites or Restricted Sites, clicking the Sites button, and adding a Web site to the list.

Under the Content tab, you can customize Parental Controls to keep not only your computer but also the children who may use your computer safe from harmful Web sites. Turning on parental controls lets you manage which Web sites or programs can be accessed, what can be downloaded, time limits for computer usage, and which games can be played.

The second option under Other Security Settings is the User Account Control, which helps to protect your computer from unauthorized changes by asking for permission from an administrator. By default, this option is turned on, but you can turn it off by entering the User Accounts And Family Safety section of the Control Panel, clicking User Account, and clicking Turn User Account Control On Or Off.

Safe & Protected

Although the thought of keeping your computer safe from potential threats may seem overwhelming, you can rest easily knowing that Vista’s improved Security Center will walk you through any changes that need to be made to better protect your computer. ■

BY KRIS GLASER

DIY Project

Turn Your PC Into A Fax Machine

If you sometimes need to send or receive faxes but can't justify the expense of a fax-equipped printer or standalone fax machine, your Windows XP computer may be able to pinch-hit for one. Although it's not installed by default, all versions of WinXP (Home, Professional, and Media Center) come with built-in fax software that you can use if you have a dial-up modem-equipped computer and a conventional telephone line. We'll outline five easy steps to help you turn your WinXP PC into a fax machine.

Step 1: Connect The Modem To The Phone Line

Even though you may have never used it, dial-up modems on PCs are like cigarette lighters in cars—they're almost always there. To check your system, look on the back for phone jacks, also known as RJ-11 connectors (they're usually found in an expansion slot).

After verifying your system has a modem, go to the Start menu and click Run. Type `devmgmt.msc` and press ENTER. When the Device Manager opens, you should see a Modems category. Double-click it, and you'll see the name of your modem. This indicates the modem's drivers are loaded, so you're ready to roll. (If the modem entry shows a red "X," it's disabled in Windows—just right-click it and choose Enable.)

Connect the modem to the nearest wall phone jack using a standard RJ-11 phone cable. If the nearest jack is too



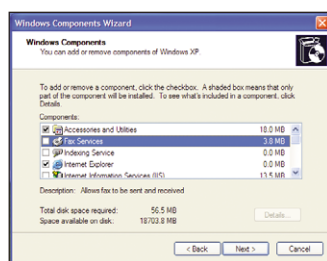
far, you can use long 25- or 50-foot cables available at most electronics or hardware stores (or even cheaper online). If your modem has two phone jacks, make sure you use the one marked LINE or WALL—the other one gives you a place to plug in a phone, and thus, is usually labeled PHONE.

Step 2: Install The Fax Software

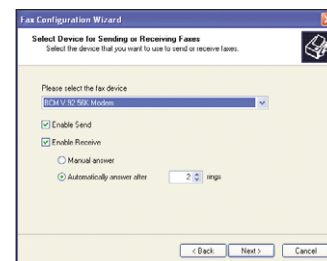
From the Start menu, click Run, type `appwiz.cpl`, and press ENTER. When the Add Or Remove Programs window appears, select Add/Remove

Windows Components. In the Windows Components Wizard, check the box next to Fax Services and then click Next to install the software. You may be asked to provide your original WinXP CD in order to complete the installation; the wizard should continue on its own a few seconds after you insert it. (If the AutoPlay feature is turned on, a Welcome To Microsoft Windows XP window will automatically appear; just click Exit to close it.)

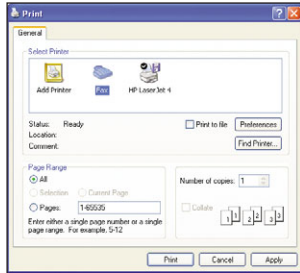
After the installation is complete, click Finish. Next, click Start, select Run, type `control printers`, and



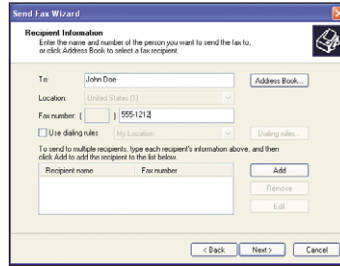
Windows XP's fax software isn't installed by default, so you'll need to do it yourself via the Control Panel's Add Or Remove Programs tool.



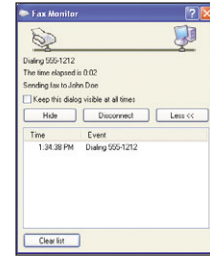
When configuring WinXP's fax software, you can decide whether you just want to send faxes, or receive them, as well.



To fax a document in WinXP, simply open the document, use the Print function, and then select the Fax printer.



When you send a document to the Fax printer, you'll be able to enter the recipient's info, customize a cover page, and choose when the fax will be sent.



When WinXP is sending or receiving a fax transmission, the Fax Monitor will appear to give you its status.

press ENTER. You should see a new printer labeled "Fax." Printing a file to this printer is how you'll send faxes with WinXP.

Step 3: Configure Fax Settings

There's a bit of configuring to do before we're ready to send or receive faxes, so return to the Start menu and click All Programs, Accessories, and Communications. Now, choose Fax and then select Fax Console, and a Location Information window may appear.

There are five settings here, the first and last of which—Country/Region and Tone Or Pulse Dialing—should be preconfigured for you (the former should already be set to United States and the latter to Tone Dialing). For most people, the only other setting that's important is the area code; enter it and click OK, and then you'll see the Phone And Modem Options window. Verify that the location (My Location) you just configured is highlighted and then click OK to summon the Fax Configuration Wizard.

On the first page of this wizard, you can enter the personal information you want to include on your fax cover pages. On the next page, look under Please Select The Fax Device and make sure that the modem you identified earlier is the one listed. (If not, select it via the drop-down menu.) Just below that, you'll notice that the Enable Send option is checked. If you want to be

able to receive faxes, as well as send them, check Enable Receive.

When you turn on the Enable Receive feature, the default setting is to automatically answer incoming calls, which is problematic if your WinXP system is sharing a phone line with an answering machine because letting your PC answer the phone first prevents callers from leaving you messages. On the other hand, if your

Fax With Windows Vista

We offer instructions for how to use a Windows XP system as a fax machine, but can you do the same thing if you have Vista? Unfortunately, the two versions of Vista you're most likely to have—Home Basic and Home Premium—do not offer fax capabilities, but Vista Business and Ultimate versions do, via a feature called Windows Fax And Scan.

Unlike WinXP's Fax Services, Vista's Windows Fax And Scan is built-in so you don't have to install it from the OS (operating system) disc. It provides all the same faxing features as WinXP, plus some new ones, such as integrated scanning to simplify the faxing of hard copy documents and a redesigned user interface that works similar to an email program. To find Windows Fax And Scan in Vista Business or Ultimate, click Start and type **Fax** in the Start Search box. ■

answering machine picks up first, incoming faxes won't make it to your PC. Therefore, if you can't put the WinXP system on its own phone line, the best approach is to set the Enable Receive feature to Manual Answer.

The next two pages of the wizard let you specify a TSID (Transmitting Subscriber Identification) and CSID (Called Subscriber Identification). The former is the information that will appear along the top edge of every fax page you send (it usually consists of a name and fax number), while the latter is a label that will appear on fax machines that send faxes to you.

On the next page of the Fax Configuration Wizard, you can decide what happens to your incoming faxes. If you want each one to be automatically printed, select the Print It On: option and specify an actual printer (not the Fax printer) from the drop-down menu. If you'd like to save an electronic copy of your incoming faxes, select the Store A Copy In A Folder option and then use the Browse button to specify the folder you want. You can also select both options, but even if you don't choose either, every incoming fax is automatically stored in WinXP's Fax Console.

On the final page of the Fax Configuration Wizard, you can review your settings and edit them, if necessary. If they're correct, click Finish. In a second, you'll be looking at the Fax Console, which keeps a record of every

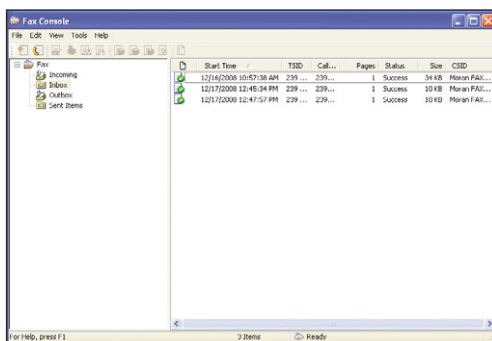
fax that goes through your WinXP system, though it doesn't need to be open in order to send or receive faxes. From the Fax Console's Tools menu, you can select Configure Fax to rerun the Fax Configuration Wizard, or choose Personal Cover Pages to create your own custom cover pages.

Step 4: Send A Fax

Any file on your computer that can be printed (a text document, an image, etc.) can also be faxed. Just open the file using the appropriate software and use the program's menu to select the print option, but instead of selecting a real printer, choose the one labeled "Fax." When you click the Print button, the Send Fax Wizard will appear. (NOTE: Right-clicking a file from Windows Explorer and selecting Print generally won't work because this action automatically prints to the default printer.)

On the Welcome screen, click Next. On the following screen, enter your fax recipient's name and fax number in the spaces provided. On the next page of the wizard, you can set up your fax cover page by choosing from a handful of page templates (as well as your custom pages) and typing a subject line and/or notes. The next page of the wizard is where you can decide when the fax should be sent.

On the last page of the Send Fax Wizard, you can review the choices you've made, and by clicking the Preview Fax button, you can view a page-by-page print preview of your fax. When you click Finish, a Fax Monitor window will appear and provide the status of your fax transmission. Once the fax has been successfully sent, the System Tray will display a confirmation message bubble accompanied by a "ta-da" sound, and you'll see the fax listed under the Fax Console's Sent Items. (If you scheduled the fax for later, the Fax Monitor will not immediately appear.)



WinXP's Fax Console keeps a record of every fax the system has sent or received.

By default, WinXP will always dial a "1" when faxing outside your area code. However, if your phone company requires you to dial "1" along with the area code for local calls, you'll need to create an area code dialing rule. To do this, click Start, Run, type **telephon.cpl**, and press ENTER. From the Phone And Modem Options window, click Edit, click the Area Code Rules tab, and click New. Enter your area code in the space provided, and under Rules, check the Dial box

Got Broadband?

Even if you get your Internet access via a broadband cable/DSL (Digital Subscriber Line) connection rather than a dial-up modem, you can still use your modem for faxing as long as you have a conventional phone line to connect it to. One caveat, though—if you have DSL service on a phone line, you'll need to plug a filter into the wall jack before connecting the modem (just as you must with phones).

If you've ditched your conventional home phone line in favor of VoIP (Voice over Internet Protocol) service that lets you make voice calls over your broadband connection, check with your provider to see if the service supports analog fax machines. If it does, you may be able to connect your modem to a phone port on the router in lieu of a wall jack. ■

(a "1" should already be there for you), as well as the Include The Area Code box. Click OK.

Step 5: Receive A Fax

If you've configured WinXP to automatically answer incoming calls, and you want to receive a fax, you don't need to do anything other than make sure the computer is up and running. Your PC will answer the phone after the specified number of rings, receive the fax, and deposit it in the Fax Console's inbox. During the process, a Fax Monitor window will appear showing the status of the transmission. When the fax has been successfully received, a message bubble will pop out of the System Tray, which you can click to view the fax.

If WinXP is configured to Manual Answer, as soon as the phone starts ringing, a message bubble with the Caller ID info (if you have the service) will emerge from the System Tray; to have your PC pick up the phone, just click the bubble.

When using Manual Answer, remember that if you have an answering machine on the same line, you'll want to be sure to make your PC pick up the phone before the machine does. Also, because WinXP can't tell you whether an incoming call is a fax, it helps to make prior arrangements so you know when the fax is coming. (Caller ID may also be helpful in determining which incoming calls are faxes.)

Fax Me

Aside from saving you the cost of a separate fax machine, using your WinXP system to send or receive faxes may also help you cut down on wasted ink/toner and paper. After all, it will let you view and store received faxes without printing them, and if you have an electronic version of a document you want to fax, you won't need to print it out before doing so. ■

BY JOSEPH MORAN

A Solid Future

SSDs Are Making Life Hard For Hard Drives



Stop. Look. Listen to your drive; hear what it's saying.

If the drive in your new notebook isn't saying anything—that is, it isn't making any noise at all—it might be part of the vanguard of a storage invasion. Hard drives are making way for flash memory, and SSDs (solid-state drives) are fueling the revolution.

A Long Hard Drive

The hard drive has had a long and illustrious reign. But as with the new flash-based storage upstarts, the hard drive also came to power in a revolutionary manner.

Back in the early 1980s, if you wanted to run an application on your personal computer, you first had to load it from a floppy diskette (or, more often, a small stack of them). There wasn't much in the way of multitasking, either: If you needed to run a different program, you had to quit the

application you were using and then load the new one. It didn't help matters that the floppy drives of the time were highly unreliable, and the diskettes were very easy to damage.

Later in the decade, the hard drive made its way down to personal computers from the business world. This miraculous storage device had enough room for many floppies' worth of data.

More importantly, you could install an application (that is, copy the contents of its diskettes to the hard drive one time) and then launch it from the hard drive whenever you liked.

A hard drive is somewhat similar to a floppy drive in that both store data as magnetic patterns on a spinning disk (or more than one, in the hard drive's case). Both types of drives move read/write heads across their disk(s) to access and record data.

Poetry Without Motion

In contrast, an SSD doesn't resemble a hard drive at all. Inside, there are no disks, no read/write heads, no motor—come to think of it, there are no moving parts at all.

Like a USB flash drive or a digital camera's memory card, an SSD stores data in solid-state memory chips. Specifically, it stores 32GB, 64GB, 128GB, or more in a type of memory called NAND (not AND). NAND isn't

as fast as the DRAM (dynamic random-access memory) used by every PC for short-term data storage. Unlike DRAM, however, NAND is nonvolatile, meaning that it can remember its data after you shut the computer's power off.

An SSD differs from a USB drive or memory card in that it is fitted with the same SATA (Serial Advanced Technology Attachment) or IDE (Integrated Drive Electronics) data and power connectors used by hard drives and CD/DVD/Blu-ray drives. Manufacturers such as Intel, OCZ, Samsung, Mtron, SuperTalent, and Memoright build SSDs with the same widths and lengths as common hard drives, although the SSDs are typically thinner. Hard drive form factors (outer dimensions) are named for the nominal diameters of the disks inside them, such as 2.5-inch for notebook drives and 3.5-inch for desktop drives. Thus, a notebook SSD may be called a 2.5-inch drive, even though it actually measures 3.8 x 2.75 x 0.3 inches (length x width x thickness).

Benefits

Because SSDs don't have any moving parts, they're silent, and they can survive more abuse than a hard drive without losing data or failing outright. Hard drives are especially vulnerable when they're operating because their read/write heads are floating just a tiny fraction of an inch above their spinning disks. A good knock while a hard drive is running can cause the heads to slap the disks, scraping off parts of the magnetic data recording layers and destroying the data stored there. In comparison, SSDs are just as resistant to physical shocks when they're turned on as when they're powered down. That makes solid-state drives very attractive to notebook users, not to mention military and industrial users.

A side effect of an SSD's solid-state nature is the fact that it takes less

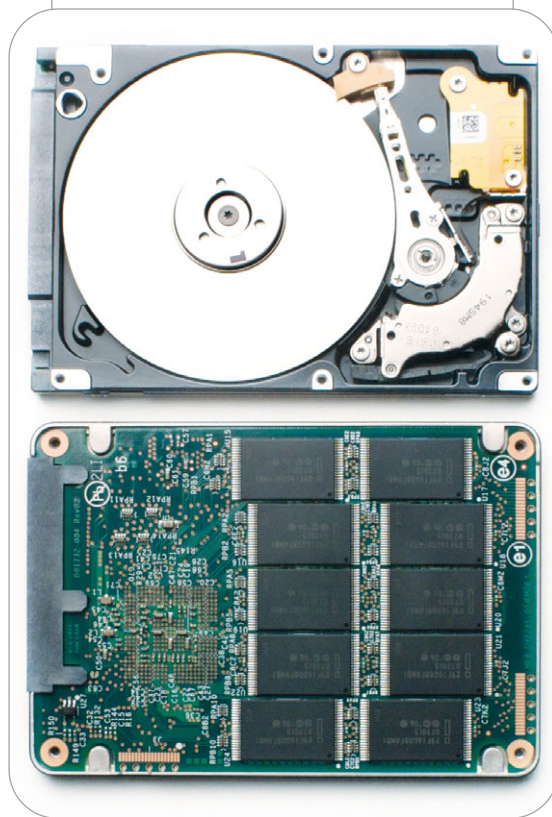
power to run one than it does to turn a hard drive's motor and wave its read/write heads to and fro. This potentially translates into longer battery life for laptops, as well as markedly lower electricity bills for data centers and server farms. SSDs also emit less heat than most hard drives, saving laptops even more power on fan usage and data centers big bucks on air conditioning.

Another boon of the SSD boom is performance, at least in certain cases. You won't notice a solid-state drive's incredible random-access speed when you're using an SSD-based laptop or desktop, although it can make things much faster for a large group of users all accessing a database or Web server at the same time. Still, a select few SSDs have read speeds twice as fast as the best hard drives. Flash's weakness is its relatively slow write speeds, but even these can be competitive with laptop and sometimes desktop hard drives.

Hard drives have a limited range of temperatures in which they're designed to work; this is another liability of their moving parts. What's more, you're not supposed to use a hard drive for an hour or more after bringing it into a warm room from the cold outdoors. The trouble is that the water vapor in the warm room's air might condense on the frigid disks inside the drive. If the drive hasn't dried out before it's turned on, the droplets of water could spell disaster for the read/write heads. SSDs not only have a broader range of operating temperatures, but they also don't care about sudden environmental changes, either.

There's one more benefit to SSDs that might interest you: You don't need to defragment them. A hard drive stores files in contiguous chunks when it can, but scatters pieces of files here and there when there isn't a big stretch of free space to be found. This fragmentation slows down data

throughput, as the drive must move its heads to locate every bit of a file while its disks spin around and around. In an SSD's case, the drive reads scattered file fragments from unmoving memory chips at the same speed as it reads contiguously stored data.



This photo from Intel shows the main difference between a hard drive (top) and an SSD (below). A hard drive stores data on a spinning disk(s), but a solid-state drive has no moving parts.

Challenges

On the other hand, SSDs aren't all sweetness and light just yet. They haven't lived up to their full potential in some respects, although the industry is moving to rectify each situation.

The elephant in the room is, of course, SSD's high cost. At press time, you could buy a 1.5TB hard drive for \$129.99 online, or nine cents per gigabyte. Make the move to solid-state storage, and you're looking at \$269.99

for an entry-level 128GB model. That's \$2.11 per GB—more than 23 times more expensive than a hard drive. An SSD upgrade to a typical laptop might cost you \$350 or more, usually with a big drop in capacity compared to the standard hard drive it replaces.

"It's important to . . . note that the gap has reduced substantially over the past year," says Crucial SSD product marketing manager Rob Wheadon, who explains that cost of NAND flash memory has the biggest effect on an SSD's price. "NAND flash can constitute 75% to 95% of the bill of materials."

Most early SSDs were made from SLC (single-level cell) NAND, which is a high-performance type of flash that stores one bit of data per memory cell. To trim costs and boost capacity, SSD manufacturers now often turn to MLC (multi-level cell) NAND, which can store 2 bits per cell (3- and 4-bit MLCs are on the way). MLC provides slower random accesses and write performance than SLC, but it's much cheaper per gigabyte and can be made into drives with greater total capacity. As with SLC drives, manufacturers are continually finding ways to goose MLC's speed. Today, an MLC "value" SSD can keep pace with most hard drives.

Speaking of speed, some initial SSDs disappointed early adopters who paid a premium to get the latest technology in their notebooks. As we mentioned, solid-state's laudable random access time is a feature that primarily benefits multi-user systems such as servers. On a single-user laptop, the sequential read and write performance is key, and many early SSD models failed to live up to users' expectations. SSDs have shaved a few seconds off of boot times, but not to a dramatic extent. Adding insult to injury, battery life with SSDs hasn't lived up to the hype.

Fortunately, all of these issues are being addressed. NAND chips are becoming faster, cheaper, and more

Samsung is one of the top names in SSDs. Its drives are renowned for speed, and its flash memory chips are found in SSDs from many vendors.



spacious. Drive improvements such as better controllers and cache memory are speeding things up. There's even talk of enhancements to file systems and OSes (operating systems), such as Windows, to optimize them for SSDs.

One area that has undergone much improvement is drive longevity. Early models notwithstanding, just about any SSD on the market today will last longer than (or about as long as) a typical hard drive. Flash manufacturers have tremendously enhanced the number of times an SSD's memory cells can be rewritten. In addition, vendors incorporate wear-leveling algorithms into their SSDs' controllers to spread out the data over all of the memory cells. Memoright, for example, says that you could write 100GB of data to one of its SSDs every day for 200 years before you would wear it out. Obviously, the more memory cells the better, so a high-capacity SSD should last longer than a smaller model. Just make sure to exclude your SSD from any automatic defragmentation software, as defragging will unnecessarily rewrite its memory cells.

No Flash In The Pan

As prices drop, speeds increase, and problems are resolved, the SSD will move from a pricey novelty to a mainstream option.

"Ultra-portable laptops (e.g. netbooks) will be the first segment to see SSD outsell HDD, perhaps as soon as the next couple of years," says Wheadon. "Other categories will follow as the cost per gigabyte comes down on SSD technology."

Today, you can get SSDs in notebooks and netbooks from major manufacturers such as HP, Dell, and Apple. Because the drives benefit mobile systems and servers most of all, SSDs are making inroads in these areas. Look for them in vibration-prone environments such as automobiles, too.

SSDs are even available in high-end and gaming desktops from the likes of Falcon Northwest, VoodooPC, and others, occasionally in a multibay

RAID (redundant array of independent disks) for even more speed. On the other hand, power saving is less of a concern to most desktop users than it is to laptop owners. Also, SSDs' silence and low heat dissipation matter less in a typical desktop case with the noise and airflow of a few fans.

It's important to understand that none of this means that hard drives will go away anytime soon. "We expect hard drives to continue serving as the primary storage medium in notebook PCs . . . and the vast majority of consumer and commercial storage applications . . . for many years to come, given their cost/capacity advantages, performance characteristics, proven reliability, etc.," says Brendan Collins, vice president of product marketing at Hitachi GST, which just inked a deal with Intel to create enterprise SSDs.

However, the role of the hard drive will become more specialized as SSDs become more ubiquitous. With 2TB models on the way, hard drives will continue to lead in capacity and price per gigabyte for the foreseeable future, and they will retain footholds in desktop systems and mass storage applications for several years. They will hold out against flash in DVRs (digital video recorders), such as TiVos (www.tivo.com), where capacity is paramount to performance. The hard drive will remain the medium of choice for video editing, too, with enough space, write speed, and rewriteability for any high-def job.

In other words, SSDs and hard drives will coexist in a storage ecosystem ultimately made richer by the new flash alternatives. "Obviously the market sees both technologies as significant," says Wheadon. "In the end, the competition between SSD manufacturers and HDD manufacturers will drive innovation in storage for years to come." ■

BY MARTY SEMS

HDDs vs. SSDs

Prices are from Newegg.com except as noted. Read and write rates are as tested.

Drive	Hard Drives		SSDs		
	Seagate Barracuda 7200.11	Western Digital VelociRaptor	Intel X-25M	Memoright GT	Samsung MCBQE32G 5MPP-0VA
Price (\$)	129.99	229.99	599	709*	299
GB	1,500	300	80	32	32
Cost/GB (\$)	0.09	0.77	7.49	22.16	9.34
Avg read (MBps)	102	130	214	117	147
Avg write (MBps)	53	130	76	119	63

* Price from DVNation.com

Home Automation

Is The Vision Of The Future Finally Here?

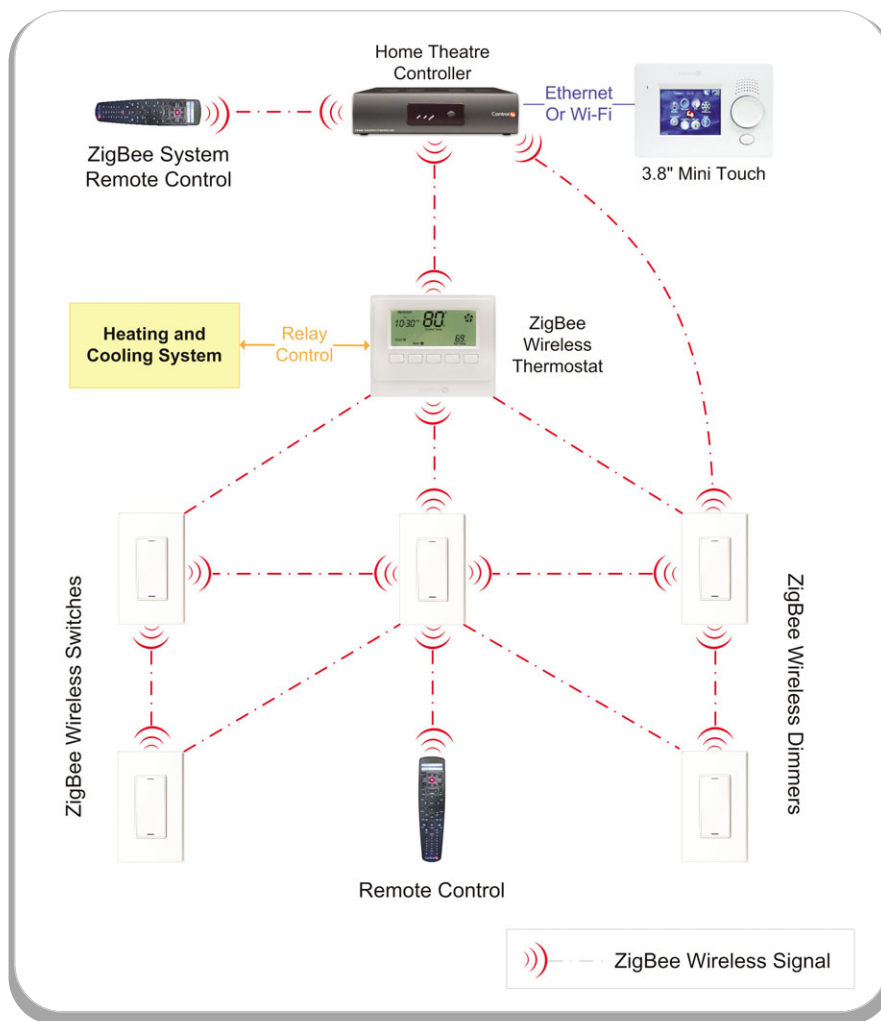
Industry folks have been touting home automation systems for several decades, with Bill Gates' \$100+ million home often used as an example of how far the technology can take us. Gates and others have described Jetsons-like scenarios where the house feeds your cat, your refrigerator notices you are nearly out of milk and adds it to the shopping list, your shower turns on at exactly the right temperature the moment you enter it, and you control every nuance of your day by parameters you set.

Despite the intriguing promise of home automation—and repeated predictions by analysts that the concept was on the brink of hitting the mainstream—consumers have still not embraced it in a big way. However, industry analysts and company leaders are once again predicting the takeoff of home automation systems.

In September 2008, ABI Research forecast that the number of home automation installations will swell to 4 million in 2013. That's more than 50 times the 2007 market, when manufacturers shipped only 237,000 systems. What's different this time? A number of factors—including better and less expensive technology, electronics that set the stage, and uptake of the concept by managed solution providers—might make it happen.

Home Sweet Home

Home automation has come a long way since 1978 when Scottish firm Pico Electronics debuted X10, the first whole-house-capable home automation technology. X10-enabled devices send messages over electrical wires, with every device acting as a transmitter and a receiver. X10 can control



With ZigBee wireless technology, all points on the ZigBee system communicate with each other, increasing reliability and signal strength.

(Image courtesy of Control4)

everything from lights and security cameras to coffeemakers, but users reported early systems were costly, complicated, and unreliable.

Other custom-designed solutions found their way to market in the 1980s, but these were out of reach of the average homeowner. Historically, says Eric Smith, chief technology officer for leading home automation firm Control4 (www.control4.com),

“the problem was that systems required new wires and were exceptionally expensive. I started in this business over 20 years ago as a contract programmer, and my programming fees alone might be \$70,000.”

Smith says that while working in luxury home automation, he realized the technology had to be more accessible. He co-founded Control4 with the goal of making products that cost less

and could more easily be retrofitted into existing homes. “The hardware had to be cheap, and the complexity had to come down,” he says.

According to Smith, one of the keys to achieving both those goals was a reliable wireless technology. “We needed a low-cost, low-power, high-reliability solution for system control. We started looking for control with no wires, and we started looking at standards. At the time, there were three options: ZigBee, Z-Wave, and powerline.” His company standardized on ZigBee, Smith says, for both technical and market reasons.

“At the time, ZigBee could handle 65,000 devices on a network, and Z-Wave could handle 64,” says Smith. “Also, the speed of Z-Wave was 9,600 bits per second, and ZigBee was 255 kilobits per second—25 times faster. If you’re trying to tell a light to turn on and off, 9,600bps is fine, but for other applications, you need more speed.” Smith also likes the fact that ZigBee is an open standard, which leads to more competition among developers.

ZigBee is an official IEEE wireless standard—802.15.4. It is a “mesh” networking technology, meaning that all nodes on the network communicate with and create a backup path for each other. Mesh solutions are generally quite reliable, as signals travel from node to node as they are passed down the line. If one node goes out, another can pick up the slack. The continued market uptake of ZigBee is one of the factors analysts cite when discussing the upcoming explosion of home automation.

Diversity Works

Smith says ZigBee is not the only solution his company uses—it also employs Wi-Fi for streaming audio and other high-bandwidth applications, as well as Ethernet where the wires are already in place. Jay McLellan, president and CEO of another industry hitter, HAI (www.homeauto.com), says diversity is a key to accessibility and

affordability. “The best home automation systems look like Swiss army knives,” says McLellan. “It is amazing that one standard has not emerged victorious, but one size does not fit all.”

This approach may sound as though it makes things more complicated, but companies such as Control4 and HAI focus on seamless integration of disparate technologies. McLellan says this approach also drives down cost, as manufacturers can pick and choose the technology that works best for the particular implementation. “On the computer side, it’s Ethernet, TCP/IP [Transmission Control Protocol/Internet Protocol], and Wi-Fi,” he says. “For devices, we lean toward ZigBee, but we also support powerline, X10,

control (and, at the upper end, whole-house audio control), the cost ranges from \$2 to \$4 per square foot.” Smith says his company’s price point starts even lower, with consumers able to get started for around \$500. (Quotes are for equipment only; professional installation is extra.)

Both professionals say they’re surprised more people don’t take advantage of home automation, given the benefits. “You go to your car and open a door, and your light comes on,” says McLellan. “Your home doesn’t do that, yet.” McLellan, whose company and home are based in New Orleans, La., remodeled his flooded home after Hurricane Katrina with a home automation system. “The entry to our



Touchpad or touchscreen control is a common element of home automation systems.



With whole-house audio as part of your system, a custom iPod dock can send or receive songs to and from other nodes.

and hard-wired. (Powerline is a technology, related to X10, that runs over existing electrical lines. Industry groups, such as the HomePlug Powerline Alliance, have worked to make powerline a more effective and efficient technology than other power-based solutions.)

State Of The Art Today

McLellan says even though home automation can still “take it to the sky,” today’s implementations have become a lot more affordable. “High-end systems can be hundreds of thousands of dollars,” he says. “However, for security, lighting, and temperature

house is the first floor, and it is an above-ground basement now. We come in the side door, and the system turns on the lights. A place where we once had a single light switch, I now have a multi-button controller that can set the scene with the lights in our dining and living room—Off, On, Dining, Entertaining, and other scenes that make it look very elegant.

“The system also reminds us of things we forget,” says McLellan. “It will sweep the house and see which lights aren’t turned off . . . set the thermostat. It reminds me of things like the schedule for my recycling pickup. It even reminded me on Dec. 3 of my birthday. These are the little

things that are very attractive in home automation systems.” McLellan says remodeling is a perfect time to incorporate home automation inexpensively. “You’re already putting in new chandeliers, energy-efficient thermostats, and other improvements. It doesn’t take that long to tie them together.”

Consumers Coming Around

With home automation systems becoming affordable and providing such benefits, why aren’t we all using them? According to Smith, the problem is one of perception. “Most consumers don’t wake up in the morning and say, ‘I want a home automation system.’ They don’t know affordable, workable solutions exist,” he says. Statistics appear to bear Smith out—according to the Consumer Electronics Association’s 2008 State of the Builder Technology Market study, low consumer demand is the No. 1 reason builders don’t incorporate home automation systems into new homes.

However, Smith notes that the growing popularity of home multimedia systems is giving his industry a boost. “Today, the entry point is the smart remote control problem. People have five different electronics devices, and they want to control them all from different points in the house. We tell people that we can resolve that problem and give them a system that will also control their lights, security system, and thermostat for just a few dollars more.”

According to McLellan, consumers’ growing concern for the environment is also facilitating adoption. “Depending on how you run your lives, you can enjoy a 5 to 25% savings on your energy bill,” he says. Furthermore, Peter Hoagland, president of the Home Lighting Control Alliance, says lighting control is increasingly being viewed as a “green” technology. “Traditionally, lighting control was considered a luxury technology. Now, applying technology as a way of saving energy is becoming increasingly important. If it’s a fairly



Today’s home automation systems can give users remote control of their systems via any phone, with visual interaction if the phone has an Internet connection.

sophisticated lighting control system, it is unlikely that you are going to get a [one-for-one] payback. The idea is that you can save some energy, reduce your carbon footprint, and get all the associated benefits—comfort, security, convenience, and control—as well.”

Do It Yourself Or Send It Out?

Systems such as Control4’s and HAI’s are designed for professional installation and service, and both companies recommend consumers go that route. However, tech savvy consumers can purchase HAI’s products at retail outlets that provide technical advice. For example, Home Controls (www.homecontrols.com) sells HAI’s Omni IIe 14E Starter Kit, a full-capacity home controller bundled with the equipment needed for a basic setup including PC access, for \$1,445. “Sometimes people have a fear of technology, so they take on one room, like a home theater or a kitchen, and they use it as proof of concept,” says Hoagland. “They like it so much they extend it to the whole house.”

Nevertheless, the trend may be headed in the opposite direction. Smith says his company is currently rolling out a partnership with Best Buy that enables its Geek Squad to install home automation systems. Control4

also has a “managed services” offering, in which consumers gain access to remote security monitoring, email alerts of incidents inside the home, and other benefits, for a monthly fee.

ABI research predicts that a managed service model will be one of the chief facilitators of growth in this sector, with cable, telecommunications, and electric companies getting into the act. “The [cable and telephone] carriers have to stop the churn . . . people switching back and forth,” says Smith. “They are intrigued with subsidizing the cost [of a home automation system] going in, and if you switch away from [that company], your house stops working, too. We have yet to see a large scale deployment of that, but they are definitely thinking about it.”

On The Horizon?

When asked when home automation will become commonplace, Smith demurred. “Some of these things could happen in the next 12 months, but it could take years. I know people who were sure it would happen in 1997, but it didn’t.”

In parting, Smith offers an example of home automation benefits he says hits home with many people. “You have a house fire, and the smoke alarm automatically shuts off the heating and air-conditioning system so you don’t circulate the smoke. It turns on the lights to 20% so you can see your way out, it opens the blinds and the garage doors, it flashes the front porch light so the fire trucks can find you, and it announces where the fire is. Almost everyone in America has a smoke alarm and a thermostat, and if just those two devices could talk to each other, you would gain a lot of synergy. Then, add the security system, and you gain more synergy. Each time you add another system, you add another level of control.” ■

BY JENNIFER FARWELL

Many of our readers come across fast, easy ways to solve a problem or accomplish a task. Well, we'd like to hear about it! If you have a great tip you'd like to share, email us at readertips@smartcomputing.com. If we print your tip, we'll send you a free *Smart Computing* T-shirt. You'll be the envy of all (well, some) of your friends.

Please include your first name, last name, and address, so that we can give you credit if we print your tip. (And so that we can send your T-shirt to you, of course.) Please limit your tip to 200 words or fewer. Not all tips received will be printed, and tips may be edited for length and clarity.

Short & Simple Tips To Make Things Easier

Simplify Your Home Page For Speed

I read the tip in the December 2008 issue about opening multiple home pages in Internet Explorer 7. It's a good tip and excellent for convenience, but it can slow down IE launch times if your multiple pages are graphics-intensive. If opening faster is more important, select a page without a lot of graphics as your home page. I use Google (www.google.com). Because text opens much faster than graphics, you'll speed up opening your browser.

John W., Lockeford, Calif.

Research With Users Manuals

For some time, I have been using the tip sent by Myles D., of Sun City, Ariz. (December 2008 issue), to download and save users manuals to my computer so they're easier to find (and enlarge to readable size). But I have not seen mentioned elsewhere downloading users manuals for products that I am considering purchasing. Rather than just reading the advertisements, when I get serious about purchasing computer equipment, a computer peripheral, a camera, etc., I download its users manual. What better way to find out what it can do and how it operates, as well as obtain a complete set of specifications? It has been a deciding factor in several purchases for me.

Norm S., Redondo Beach, Calif.

Easily Resize Digital Photos

Need to downsize images for a digital frame without a photo editor? Try emailing them to yourself.

First, locate the photos for downsizing in Windows Explorer.

Right-click the file name and then select Send To and Mail Recipient from the context menu.

Select Make All My Pictures Smaller and click OK. Put your email address in the To: field and click Send. I have modified up to 110 pictures in minutes using this method.

(NOTE: In order for this technique to work, you must have an email client set up to work with Windows, such as Outlook Express or Windows Mail.)

Mike S., The Dalles, Ore.

Think Before You Delete

Set the stage of a five-generation family photo where two of the participants' eyes are closed. In the past, we would've taken a second picture and tossed the original. But today, we can download the picture and crop it to capture a poignant moment of a great-great-grandparent holding his great-great-grandbaby.

We own every inch of our digital photos and are limited only by the photo software we use to manage the photos. While deleting photos will save memory, the benefit of that is almost mute due to the increasing capacity of memory cards available these days.

Annie M., Cresson Pa.

Create A "Catch All" Folder

During the day, I am constantly running across bits of information that I'd like to read or check out further. However, in the interest of saving time and getting work done, I have created a folder by the name of Catch All. Whenever I run across a Web page or email, etc., I just drag the URL or item to that folder. Then, when I have time—another day or whenever—I go back to that folder and browse. Not only does it save me time, but a day or so later, I may not be so interested in that subject, and it saves me time even bothering to read it at all. This is pretty simple, but I have found several people who thought it was a good idea.

Ed B., Mukilteo, Wash.



Break Down Barriers With Synchronization Software

Did you smack your forehead when you bought your shiny new Mac and then realized that you couldn't sync your PocketPC with it? Don't worry, that happened to a lot of people. It's one of those things that we Mac apologists sometimes forget to mention when we're trying to convince someone to switch from PC to Mac:

"You mean I can get Microsoft Office for my Mac?"

"Yep."

"And I can use Boot Camp to set up a dual-boot system with *both* Mac OS X and Windows XP?"

"Yep, you sure can!"

"Wow. So are there any Mac/PC compatibility issues left to consider?"

"Hm . . . none that I can think of off the top of my head!"

Sorry folks . . . our bad. Fortunately, this problem has been vanquished, thanks to Eltima from SyncMate.

SyncMate, amazingly, is free. Or rather, there's a free version you can download from www.eltima.com. If you want to bump up to the Expert Edition for more functionality (hint: you do), it'll only cost you \$39.95.

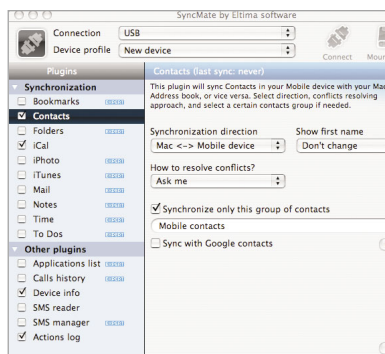
Get Ready

SyncMate works with most Windows Mobile 5 and 6 devices and Mac OS 10.4 and higher. You can make a connection between your Windows Mobile device and Mac via USB or Wi-Fi and sync applications. And it's really easy to use.

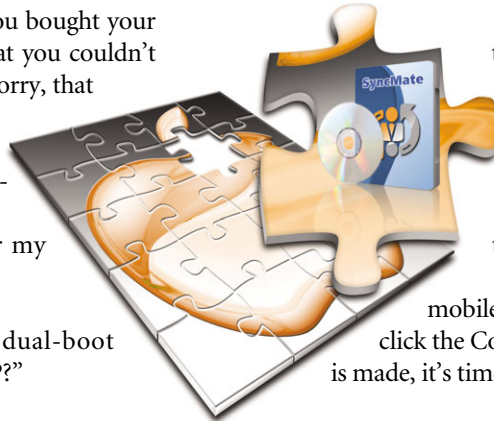
After downloading SyncMate on your Mac, double-click the icon to begin installation. You'll be greeted by an easy-to-follow installation wizard; follow the instructions on-screen, and you'll have SyncMate installed in a couple of minutes.

I made the connection with the USB cable that came with my smartphone.

(NOTE: Make sure Advanced Network Functionality is enabled on your mobile device if you're using Windows Mobile 6.) Once connected,



SyncMate makes it easy to synchronize your Mac and—gasp—a Windows Mobile device.



the software will install itself on the mobile device; look for the SyncMate logo in a corner of the screen. Locate the icon, click it, and finish configuring the software. Any firewall settings should be set to Allow All.

After the program installs on the mobile device, go back to the Mac and click the Connect icon. When the connection is made, it's time to set your sync options.

Get Set

From the SyncMate window on your Mac, look under Synchronization. There you'll find a list of options you can check, including Bookmarks, Contacts, Folders, iCal, iPhotos, iTunes, Mail, Notes, and To Dos. Under the Other Plugins heading, you can also select Applications List, Calls History, Device Info, SMS Reader, SMS Manager, and Actions Log.

These are all items you can select to sync, and each has a variety of options you can set. Primarily, you can determine in what direction the syncing will take place: from the mobile device to the Mac, from the Mac to the mobile device, or between both. Many of the options have other preferences you can set, as well.

In the free version, only Contacts, iCal, Device Info, SMS Reader, and Actions Log can be enabled—a strong reason why the Expert Edition is worth the money.

Get Synced

When you've made your selections, click Sync Now in the upper-right corner of the SyncMate window and wait. You can check the Actions Log to make sure the Mac can locate the device and is syncing properly.

When the synch is complete, click Disconnect in the SyncMate window, remove the USB cable connecting the mobile device and computer, if you used one, and be on your way.

SyncMate is easy to install, configure, and use, and it solves a major problem PC crossover users have faced—being unable to sync their (non-iPhone) smartphone to their Mac. It's just one more barrier that's been broken down between Macs and PCs. At this point, there aren't any more compatibility issues between the two platforms . . . at least none that I can think of off the top of my head. . . . ■

Product Info

SyncMate

Free; \$39.95 for Expert Edition

Eltima

(425) 748-5166

www.eltima.com

Web Tips

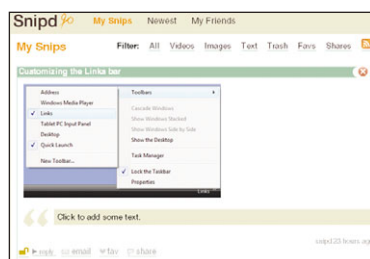
Enhance Your Time Online

Quickly Share Media

Problem: I want to clip and keep pieces of a Web page, but I don't want to save an entire document.

Solution: Snipd.com is a site that lets you snip, save, and share videos, text, and images without having to copy and paste a link. Signing up involves providing a username, email address, and password. By adding the Snip It bookmarklet in the Links folder of your Favorites, you can access Snipd on every Web page you visit.

When you activate the Snipd link you previously placed in your Favorites, it will load a Taskbar at the top of the Web page. When you hover your pointer over an item, click the green scissors icon to snip what you want. You'll find your snippets in My Snips; from here you can add a text comment about the snip, email your favorites, or share each snip with another Snipd user.



At Snipd.com you can save clipped items in multiple filter categories such as Videos, Favs, and Shares.

Never Forget Again

Problem: I always write reminders to myself, but I still seem to forget important tasks that I need to complete.

Solution: Consider Remindr (remindr.info). This online tool will help you remember what you need to do and when you need to do it. Enter your task in the Please Remind Me To field. Next, fill in the date and time you want to receive a reminder. The best feature is that you can receive this message through Twitter, Jabber, email, or mobile phone. Or, better yet, you can choose all four mediums to guarantee that you won't forget.

Back Up Mobile Data

Problem: If my cell phone is lost or stolen, none of my contact information will be saved.

Solution: A service such as ZYB (www.zyb.com) is perfect for automatically backing up the information on your mobile phone. If you or a friend edits contact information (numbers, emails, etc.), ZYB will keep track of this change and update the content online. Additionally, you'll be able to see what your friends and

family are up to on social sites, including Facebook, Twitter, and blogs.

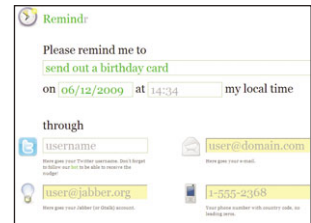
ZYB promises that the data you store on its site is secure—only you can access your data and give express consent to another. Before you sign up, be sure to see if ZYB supports your phone model.

Request Moving Quotes

Problem: I want to get the best rate from a local moving company.

Solution: You could call every moving company in your area to get the right information, or you can use USA Movers (www.usa-movers.com) to compare pricing quotes from local moving enterprises. Start by choosing the state from which you are moving and then select the region that includes the first three numbers of your area code. You'll then click the type of move you're planning: local, long distance, business, car transport, piano move, or international.

USA Movers displays the names of multiple nearby moving companies for you to choose from. Head to step five and fill out the required quotation form; this information will then be sent to the companies you chose.



Remindr is a quick and easy tool that can keep you from forgetting your to-do list.

Stop Junk Mail, Plant Trees

Problem: I'm tired of tossing out a lot of junk mail every day because I feel it hurts our environment.

Solution: The Web site GreenDimes (www.greendimes.com) is an eco-friendly site that claims to stop 90% of your junk mail within 90 days of signing up. Although this service costs \$20 a year, it seems to be worth it if 1.3 million trees have already been planted as a result of effective waste reduction. Every time a new member signs up, GreenDimes plants five trees to help aid reforestation.

You'll be asked to create an account including the address that you want to be junk-free and your billing information. (NOTE: GreenDimes automatically renews your subscription, but you can cancel at any point.) GreenDimes not only removes your contact information from marketing lists and catalog senders, but it will also keep you off monthly mail lists. ■

BY JOANNA SAFFORD

Find It Online

Buy, Sell & Auction Antiques

Fullers' Best Antiquing U.S.A.

www.bestantiquingusa.com

Travel guides can direct you to some of the best must-see locations. Fullers' Best Antiquing U.S.A. is intended to be a companion for well-traveled antique enthusiasts. The site's Antique Virtual Tour guides you through the best shops and malls in almost half of the nation. This site best functions as a hub for finding antiquing information about particularly bountiful districts, malls, and towns full of outstanding antiquing opportunities. To read the entire Fullers' antique guide that includes cross-country coverage, you'll need to purchase the book for \$19.95.

TIAS.com

www.tias.com

This Web site describes its inventory as "Fine antiques and collectibles on the Internet." To get your antique shopping spree started for these items, click New Items, which will take you to the most recent additions in the Collector's Showcase. From here, you'll be able to select an alphabetical category, including sections such as Art Nouveau, Knives, Lunchboxes, Primitives, and much more. The vintage Card category is a real find; search the various holidays to discover some gems. If you're interested in joining a club related to antiques or collectibles, be sure to search the Club Directory to find the best fit for your interests.

Bath Antiques Online

www.bathantiquesonline.com

If you are looking for the finer (yet older) things, direct your browser to BathAntiquesOnline.com, a collection that originates from Bath, England, and

surrounding areas. Not surprisingly, each available item has been "carefully selected, authenticated, and thoroughly inspected for condition," so curious antiquers can browse quality goods. The latest antiques are listed on the left side of the home page: Some of the latest items at press time included a Victorian garnet necklace, an Edwardian brass coal bin, and a copper candlestick holder. The site offers an alphabetical price guide for a plethora of classy collectibles. You also have the option to receive free alerts about category updates.

The Antique & Collectible Exchange

www.tace.com

The Antique & Collectible Exchange is designed to be an all-encompassing marketplace for both buying and selling antiques. One of the unique features on this site is the Wanted List, a section where Tace.com dealers post the items they're searching for. If you know you have the perfect collectible for a dealer, click the item, and you'll find contact information. You can start your own search by clicking All Categories under Popular Sections; here you'll see a breakdown of practically every collectible item you could think of—you can even browse Olympic items, motorcycles, and inkwells. In addition, you can log on to the Discussions forum to chat about your favorite antiques.

GoAntiques.com

www.goantiques.com

Fans of live antique auctions should take a look at GoAntiques.com. This Web site includes a complete auction



schedule; you can register for a live auction under Future Live Auctions. (On the main page, go to the GoAntiques Live Auctions section and click View Our Complete Auction Schedule.) Scroll down to the Channel Features section, and you'll find featured showcase collectibles with an accompanied image. If you continue to About Our Antiques & Collectible Channels, you'll read helpful descriptions about the types of items GoAntiques offers. Be sure to explore the publication links on the left side of the home page—these will direct you to more specific sites for your antiquing niche.

WorthPoint

www.worthpoint.com

If you're an avid fan of the TV show "Antiques Roadshow," WorthPoint should truly suit your fancy. Maybe you have some potentially valuable items gathering dust in the attic; if so, you can ask an antique expert called a "Worthologist" (for \$19.95). A professional Worthologist will place a value on your submitted item based on a photo and the information you provide. You have the option to consult the WorthPoint Community at no cost, though the level of accuracy may be skewed. Joining a Community that shares your specific interests is a great way to get your questions answered and meet other collectors.

That's News To You

Finding the appropriate online group to match your interests can be a monumental task. So each month, we scour the Internet to bring you the friendliest forums and most interesting bloggers the Web has to offer. This month, we're featuring a blog that will teach you the ways of true antiques.

Antique Trader Blog

blog.antiquetrader.com/blog

Serious antiques is not for those who want to tinker around with a few old bobbles—it can become a true passion for the dedicated collector. Those who understand the benefits of savvy antiques will appreciate the Antique Trader Blog. The original newspaper, *Antique Trader*, has been in circulation since 1957, and it has evolved into a publication that spotlights collectors, classifieds, auction reviews, and relevant reporting about the valuable items antiques want to see.

The Antique Trader Blog expands this journalistic focus to the readers who crave to read even more. According to Karen Knapstein, online editor of the Antique Trader Blog, “the blog originated [in 2006] when the editorial and advertising staff teamed up and created it as an avenue to reach beyond our publication readership and increase Web traffic.”

Covering noteworthy topics is critical to keep readers coming back each day. “We keep our eyes and ears open for subjects and events that will be of interest to our readers, such as antique shows and auctions, market trends, and antiques-related news,” Knapstein says. “It’s a great way to spontaneously deliver the news.”

The Antique Trader Blog does just that. You’ll find posts about everything from antique scams, festivals, odd news, economic education, and specific collectibles. Aside from being in the know on these matters, readers can voice their opinions on the Antique Trader Blog. “One of the purposes of the blog is to encourage the antiques community to interact with us at Antique Trader,” Knapstein says.

“With the feedback we receive from our blog, message boards, and surveys, we can provide our readers with the relevant, timely information they want,” says Knapstein.



The Antique Trader Blog is an excellent resource for news and opinions within the antiques community.

Share The Wares

Some of the best apples in the online orchard are the free (or free-to-try) programs available for download. Each month, we feature highlights from our pickings. This month, we share a program that will keep your antiques categorized and organized.

Collection Manager 3

www.frostbow.com

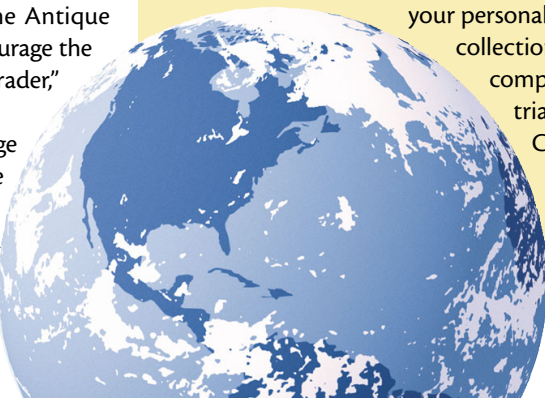
Committed antique collectors who own even 50 authentic relics know how important it is to label and catalog everything that's worth saving. If you're really detail-oriented, you'll want to remember the item's original price, where you purchased it, and why it's significant to you. Sellers are concerned about tracking their acquisitions, appraisals, and profits. Staying on top of all these administrative duties could be overwhelming without the proper tools; however, Collection Manager 3 from Frostbow can assist you with keeping track of all your records.

The Collection Manager provides a familiar interface and an easy-to-use layout view of each antique you've categorized. When you open a single item, you'll see its image on the right, with description, valuation, and other details on the left. Under the Item section, you can enter the following data: manufacturer, origin, serial number, condition, appraisal date, the retailer, and much more. The Valuation category lets you list the standard cost, asking price, and appraised value.

Changing the program to Grid View reveals a comprehensive view of all the items you've entered. You can also design your own report template by choosing Custom Reports. To summarize your collection information, use the preloaded charts, so you can view items in vertical or bar chart format. Version 3 supports Windows Me/2000/XP/Vista; it features password protection, as well as built-in

backup/restore tools for safeguarding your personal (and expensive) collection. After you've completed your free trial, Frostbow

Collection Manager 3 is available online for \$24.95.



Let's Keep It Brief

Microblogging: Short & Sweet



The Internet provides a multitude of tools that let you document the moments of your life, share personal experiences, and communicate practical advice. Blogs are the medium of choice for many to share their thoughts and interests, but blogs aren't the only way for you to express your opinions. Microblogs are free online services that allow you to send brief updates and reflections (and sometimes images and videos) to a group of friends, family, or even business contacts. Your posts are sent directly to friends that choose to subscribe to your blog, and they can receive the message in a variety of ways, including instant messaging applications, as text messages sent to their mobile phones, or through RSS (Really Simple Syndication) feeds.

Fun, Simple & Useful

According to David Sacks, CEO of microblog service Yammer, "Compared

to blogs, microblogs are designed to deliver short messages; you can think of a microblog post as a text message sent to all your friends."

You can easily post a quick musing or tell your friends what you're doing or where you're going to be, so a microblog is ideal for planning events and generally keeping in touch with a large group of people who want to know about your everyday life. To help you follow the short-update format, most microblogs limit the number of characters you can type into a single entry. For instance, Twitter (twitter.com) and Plurk (www.plurk.com) both limit comments to 140 characters (around one or two sentences). Other microblogging services allow greater space for text.

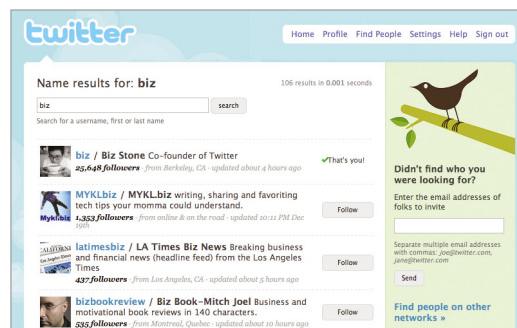
The informal structure lets you impart glimpses of your current day to those who subscribe to your microblog, and because the content is sent directly to them, they don't need to make extra effort to keep up-to-date on your life. On the flip side, you can also subscribe to your friends' microblogs to see their broadcasted events, snapshots, and updates. Microblogs are offered as an online service, so you can post or view entries from any computer or mobile phone with Internet access.

Like many other social networking tools, the primary goal of microblogging services is to help you connect with others. But Microblog functionality isn't merely limited to friends and family. "If you need to regularly communicate with

co-workers or clients, microblogs can help you manage schedules, track the progress of tasks, and instantly update others about a finished project," says Sacks. Many online services also let you share links, images, and files. For example, Yammer (www.yammer.com) is a microblogging service designed for businesses and organizations, and it includes an Attachments feature that lets you attach any file or image with your message. A company is given its own private service, so users only share news and opinions with other workers within the company.

Stay Connected Wherever You Are

Microblogs make it easy for you and others to keep in touch because the



Twitter is a microblog service with over 2.4 million users.



Only employees with a valid company email can access Yammer's microblog service, so users know their posts are secure.

services send updates directly to your subscriber network via a method of the subscriber's own choosing. Those who want to be updated via their computers may receive your posts via email, RSS feed, or by checking their microblogging profiles online. Some microblogging services can also integrate with instant messaging applications, such as MSN Web Messenger, Yahoo! Messenger, or AIM. Mobile phone owners may also choose to receive updates via text message. We should note that text messaging charges will apply to each post you receive, so you'll want to consider the cost before signing up to receive posts via text message. There are also a number of first- and third-party applications that can aggregate the updates from multiple microblogging Web sites and let you view and post content on several Web sites from one application on your PC or mobile phone.

Need A Quick Response?

The instant communication of microblogging services lets others respond in minutes, rather than the hours it may take others to view an email or blog. Thus, microblogging can be useful if you need to send directions to a group of people or immediately warn others during an emergency. In fact, several universities, including Pacific University in Oregon, have set up Twitter accounts that students can sign up for, so the university can quickly message all students in case of a school closing or other emergency. Some professors have also begun to use Twitter in the classroom to help students connect with each other for group work and to discuss class topics or resolve homework issues that cause them trouble.

It's also handy that microblogs maintain a record of your communications. If you forgot the location at which you were supposed to meet a friend or colleague, you can read through the communications log and find the information you need. Alternatively, everyone in the group can check the log to see which tasks or actions have and

haven't been completed. For instance, if you're planning a St. Patrick's Day party, you could issue invites, estimate how many people plan to attend, and track what others will bring without needing to call or email all attendees.

An Easy Read

There are many blog sites, such as MySpace (www.myspace.com) and WordPress (www.wordpress.org), that allow you to network with an online

You Don't Have To Take Our Word For It

Here's a short list of popular microblogging Web sites, but because microblogs are a recent trend, you may want to try a few to see which one you like best.

Twitter (twitter.com) lets you social network via Twitter.com, instant message, or text message.

Plurk (www.plurk.com) offers microblogs with themed groups that display communication logs with an instant message-like interface.

Identi.ca (identi.ca) is an open-source microblogging service and social networking tool that broadcasts messages via the Web, RSS (Really Simple Syndication) feeds, or instant messages.

Tumblr (www.tumblr.com) is a microblog publishing tool with a scrapbook-like interface that can handle text, photos, videos, and other content.

Yurbo (www.yurbo.com) provides you RSS feeds, and you're not given a character limit for blog posts.

MySay (www.mysay.com) lets you save voice messages, and subscribers can listen to your "posts" via phone or email or by visiting your profile.

Hictu (www.hictu.com) is a video microblogging service that also lets you post text and audio.

Yammer (www.yammer.com) features threaded discussions over a secure private page. It's designed for businesses that want to communicate quick thoughts and track progress. ■

community of friends. Microblogs offer the same kind of online interaction but in a format that's easier to write and read.

You can open the microblog and catch up on the lives of several people in a matter of moments. Although reading one to two sentences of content is arguably less meaningful than reading multiple paragraphs of text, people tend to update their microblogs often, and it's easy to read multiple updates during your downtime. The short nature of microblogs also makes it easy (and socially acceptable) to add one-sentence comments to other peoples' posts.

It's Customizable

If you'd prefer to keep your online community small, nearly all microblogging services let you limit your updates so that only the friends you approve can read your comments. And when it comes to receiving friends' posts, you can often choose to receive updates via multiple methods, such as email, RSS feed, and text message, or limit the microblog service to only post updates to your Web site profile. And if you ever want to block someone from seeing your updates, you can simply remove the user from your friend network.

It's Not So Bad Being Trendy

According to data from Nielsen Online, Twitter was the fastest growing social networking Web site in September 2008, with a 343% year-over-year increase. Based on the overall rise in popularity of microblogging Web sites, it's quite possible that microblogs will quickly become a part of mainstream culture. If you're looking for a simple, fun way to update and keep up-to-date with your friends, join a microblog and invite your friends to join, too. Then, you can become friends with their friends and grow your own social network community. ■

BY NATHAN LAKE

Internet Games

More Fun Than You Can Shake A Stick At



You may have heard of “gamers,” or people that spend incredible amounts of time playing games online. For the devotion that gamers display, you’d think that they account for the vast majority of people playing games online. However, that assumption fails to take into account so-called casual gaming, an insanely popular pastime among many adults.

According to the Casual Games Association (www.casualgamesassociation.org), about 200 million people play casual games online. Interestingly, the primary demographic of casual online gamers is over 30 and female, though large representations from virtually every age and gender also play. Regardless of who is playing, the casual gaming industry continues to churn out new games—about 500 every year.

Unlike hard-core online games, which tend to be quite violent and require a lot of time and energy to learn, casual online games are generally very easy-to-learn word, puzzle, and board

games. And, while hard-core gamers set aside hours at a time to play online, casual gamers often enjoy playing for brief stretches, such as during a lunch or coffee break.

That’s not to say that you can’t spend hours playing casual games, however; plenty of users find themselves embroiled in a gaming frenzy for hours on end, even when the game is simple. The key to whether a game is successful, notes Paul Thelen (founder and chief strategy officer of Big Fish Games), is whether it’s addictive. “The games we offer on www.bigfishgames.com are extremely accessible, yet difficult to master,” he says.

One of the great strengths of the casual gaming industry is that a game can be conceptualized, developed, and launched for a fraction of what it costs to bring to life other types of games. For example, according to Wired.com, the popular console game *Grand Theft Auto: San Andreas* had a production budget of about \$5 million, while online games such as Yahoo!’s *Pool*—one of the most popular games on its site—only cost about \$100,000. Furthermore, the former type of game development requires a great deal of personnel to create and bring the game to market, while the latter type of game can be made by a single person.

Possibly the most compelling reason for trying out these games is that it requires virtually no commitment. Because the games are platform agnostic—meaning that you don’t have to have a certain type of computer or game console—just about anyone with a computer and a decent Internet connection can play. The games are optimized for a Web browser, and

unlike most disc-based PC games, casual online games don’t require a fast computer.

Most games can be enjoyed free, although some sites charge subscription fees. Additionally, you can purchase and download many of the games. Prices for both subscriptions and purchased games vary, but the costs are fairly nominal; for example, expect to pay no more than \$20 for a downloaded game.

Who’s Playing

As older generations adopt computer technology into their daily lives, and younger generations increasingly feel as comfortable online as in their own skin, Internet use is skyrocketing. And although young people enjoy casual games, it’s the slightly older demographic that dominates the casual gaming landscape. According to Thelen, about 70% of his company’s gamers are women ages 35 to 55 years old. Andrew Pederson, general manager of the popular gaming site Pogo.com, says that 65% of Pogo’s community is female, and 58% of the player population is age 35-plus.

It’s no secret that successfully designed games are meant to be addictive, but there are other reasons why so many are logging on to play. One primary reason is that casual gaming fosters community. Many games allow or even require multiple players, so if you want to play, you either need to join a group that is short a player or convince friends or family to join you so you have enough for your own game.

For example, if you have a strong desire to play Monopoly online, you may need to find a game that is waiting for a fourth player to join. Even if the other players are total strangers, they’ll be glad to have you because you let them start the game. Or, if you have a sister in Albuquerque, a nephew in Atlanta, and a favorite uncle in Detroit, you can schedule a

time to be online simultaneously and create a game of online Scrabble to play together. During the game, you can chat on the phone with conference calling, video chat, or just instant message one another if the game offers a built-in chat function.

It's far more gratifying and fun to play against other people instead of a computer, and you may find that you meet interesting people and even make friends—all from the comfort of your home. This can be a particularly uplifting activity for people who aren't especially mobile and find it difficult or impossible to leave the house for extended periods of time without special assistance.

What's Popular

There are dozens of casual gaming sites, and most have dozens (if not hundreds) of games you can play. Your options range from word and puzzle games to online versions of popular board games to strategy and arcade-style games. Yet, somehow a few favorites seem to emerge from the pack.

One of the most popular games at press time was Bejeweled 2, a puzzle game where you switch “jewels” around to get three of the same kind in a row. When you get three or more, they disappear, the game board shifts accordingly, and you suddenly have a new set of options for matches. You can find this game, or a similar version of it, at many sites.

Desktop Tower Defense is a quirky game wherein you get “money” to purchase towers, each of which has different capabilities including range, firepower, and type of projectile. You have to strategically place the towers on the battlefield to combat simple cartoonish figures that attempt to dart across the field. If they make it to the other side, you lose points, but if you're able to destroy them before they make it, you get more money to buy more towers. The characters become more numerous and difficult to



Bejeweled 2, an addictive puzzle game, is available on many gaming sites.



One of the most popular games around is Desktop Tower Defense.

destroy as the game progresses—which is why you need to purchase more towers to combat them.

A classic favorite is Mahjong Solitaire. You're given a pile of numbered, lettered, or otherwise decorated tiles, each of which has a match somewhere in the pile. You have to find the matches to remove them from the pile, but with the caveat that you can only use tiles that are uncovered and have at least two sides that are not touching any other tile. Once you've removed all the tiles, you win the round and are presented with another pile of tiles in a different configuration. You keep going unless and until you run out of moves.

It's Wide Open

The bottom line is that casual games are just that—casual—and free or cheap. There are many types of games, including adventure games, arcade games, puzzle and word games, virtual versions of your favorite titles, and more. And with hundreds of games to choose from on so many sites, you're certain to find your personal favorite. ■

BY SETH COLANER

Thumbs Up To These Sites

You can't be too careful whenever you're online. Though there are many great game sites, some may have malware or salacious content. Here are a few sites that seem to be clean and safe to use.



games.yahoo.com

This is the game section of Yahoo!'s site. You have to sign up for a free Yahoo! account to use this site, but if you already have a Yahoo! email account, you're all set.



www.bigfishgames.com

Big Fish Games is one of the largest casual gaming sites on the Internet. At this site, you can play many games free online, or you can purchase and download games for \$6.99.



www.pogo.com

Pogo is Electronic Arts' casual online game site, and it's the best place to find popular Hasbro games such as Monopoly, Scrabble, and Trivial Pursuit.

Best Of The Web

In my festive column last December, I pledged to you that I would start off 2009 with my critically acclaimed, annual “Best Of The Web” column. Many of you marked your calendars and, with eager anticipation, counted down the days to its arrival—only to be bitterly disappointed when it did not appear in the January issue. I apologize for the delay. After testing more than 150 addictive online games for last month’s column, my stint in rehab was a bit longer than expected. But I’m out, I’m feeling good, and I think you’ll be pleased with the following little-known Web-based treasures, presented in alphabetical order. Enjoy!

CalorieLab (www.calorielab.com) presents caloric and nutritional benefits (if any) for more than 500 popular restaurant menus and 70,000 foods. It also includes the number of calories burned for many day-to-day activities. Inexplicably, there is nothing for “column writing.”

CaringBridge (www.caringbridge.org), for more than 10 years, has been helping friends and relatives of seriously ill individuals stay informed by providing free Web sites.

Cute Overload (www.cuteoverload.com). When you’re having a bad day, a smile is only a click away if you bookmark this site. Oh, what the heck: Don’t miss BabyAnimalz (tinyurl.com/5srkk7) or Kitten War (kittenwar.com), either.

Drop.io (www.drop.io). This is an excellent free file-sharing service. Type in the URL you would like to use, upload your files, set a password, and choose how long the link should be “live.” Sharing your files is as easy as sending the URL to others.

Eyespygolf (www.eyespygolf.com) is arguably the largest Google Earth golf course directory. This eye-in-the-sky provides a virtual bird’s-eye view of more than 16,000 U.S. golf courses.

GamesForTheBrain (www.gamesforthebrain.com). Like the muscles of the body, the brain needs regular exercise, too. Choose from a variety of cerebral flexors that will tone your memory, pump up your IQ, and give you those six-pack lobes you always wanted.

Gethuman Database (www.gethuman.com) provides toll-free telephone numbers of hundreds of organizations and tells you how to circumvent multiple layers of voicemail and connect with a live body. “Don’t tell me how important my call is, just pick up the phone!”

How-To Videos (learnhowto.tv). All videos are free and cover topics from how to play a ukulele to how to give your cat a bath. (Good luck!) I just learned how to do a 360 flip on a skateboard. Next video for me: “How to Treat a Fracture.”

InsideTrip (www.insidetrip.com) takes flight searches one step further than most sites by letting you search by

legroom, lost luggage, and on-time percentages, but not probability of close encounters with screaming babies.

NetBasis (www.netbasis.com) is a fee-based site that tracks the cost basis of your plummeting stocks, mutual funds, or bonds factoring in stock splits, reinvested dividends, and other variables.

PageOnce (www.pageonce.com) is an online account aggregator that lets you keep tabs on your bank accounts, social-network profiles, remaining minutes on your cell phone plan, and even which Netflix movies are on their way.

RadioTime (www.radiotime.com) enables you to tune in to online streams of terrestrial radio anywhere in the country.

Read Print (www.readprint.com) provides thousands of free, printable books for the classic-literature enthusiast. Search by title or author. If you don’t know the name of the book or its author, perhaps this isn’t the site for you.

Remember The Milk (www.rememberthemilk.com). Create to-do lists, shopping lists, project deadlines, and receive reminders by email.

TypeRacer (play.typeracer.com) tests your typing skills by pitting you against other players for the chance to receive fame and possible finger-cramping.

U.S. Hospital Finder (www.ushospitalfinder.com). Type in an address, city and state, or ZIP code, and then click Search. The hospitals closest to you will be displayed.

WebCrosswords (www.webcrosswords.com) for crossword puzzle fans is a must-play. In the unlikely event you get stuck, stymied, or flummoxed, click the Solve tab to reveal a letter or a word or solve the entire puzzle.

YouConvertIt (www.youconvertit.com) provides a simple way to convert audio, video, images, and documents into a wide variety of file formats.

Yugster (www.yugster.com) sells one product a day. When whatever quantity it has to sell is gone, that’s it. Done. Fini. As I write this, the IOTD (item of the day) is an LCD cleaning kit. Elsewhere, the price is \$36, but I can buy it on Yugster for \$19. Lucky me.

Coming up next month: April’s column will shower you with a potpourri of little-known computer tips, each one a miracle of nature unto itself. ■

BY MR. MODEM

Mr. Modem (Richard Sherman) is an author, syndicated columnist, radio host, and publisher. “Mr. Modem’s Weekly Newsletter” provides personal responses to subscribers’ computer and Internet questions, plus weekly computing tips, Web site recommendations, virus alerts, hoax warnings, and more. For additional information, visit www.MrModem.com.

May I Have The Definition Please?

Technology can be easy to use and understand, but sometimes the language is not so easy to decipher. Because computers and technology have become such a huge part of our everyday lives, the non-computer-programmers among us need to be able to speak the same language. So, if you're not quite sure what a zombie or a peripheral is, you can search SmartComputing.com's Dictionary/Encyclopedia to find out! This online dictionary provides plain-English definitions to hundreds of terms, abbreviations, and acronyms. This link also includes an encyclopedia that offers in-depth descriptions of terms you're likely to encounter when installing or uninstalling software or hardware.



1. Log on to SmartComputing.com and click the Computing Dictionary & Encyclopedia link on the blue menu on the left side and start expanding your vocabulary today!
2. Search the alphabet for the term you're looking for or use the Search box to find words that contain, begin with, or exactly match the term you're searching for.

March Madness



According to comScore, during the NCAA basketball tournament last year, online gaming traffic grew 14%.

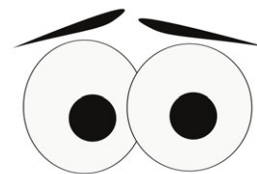
Chat Room

Have a question? Turn to fellow *Smart Computing* readers for answers to your computing queries. Click the Computing Chat Room link at www.smartcomputing.com to start discussing computer-related issues.

[Computing Chat Room](#)

Sneak A Peek

Get a look at what's coming in next month's issue. Click the Upcoming Issues link at www.smartcomputing.com to learn the feature topic for the next *Smart Computing* issue.



Smart Computing's Fun Site Of The Day (Dec. 8, 2008)

Life Organizers

Many people need help organizing their stuff. If you have kids, the amount of stuff you likely need to organize skyrockets. Life Organizers is a site with lots of tips on how to, well, keep your life organized, and it has pages dedicated to tasks such as eliminating clutter. Check out the articles on organizing your whole house from baskets and drawers to furniture placement. You and your clutter will be glad you did.

www.lifeorganizers.com





SAFELY UNINSTALL SOFTWARE

IT'S EASIER THAN YOU MAY THINK

It's wonderfully easy to install software on your computer, and with the proliferation of thousands of handy and free applications out there, some people go a little wild and install tons of programs. Then, in a free version of buyer's remorse, you realize that you're never going to use half of the applications you installed and want to get rid of a few.

Or, perhaps your computer is getting cluttered, and you'd like to reclaim some hard drive space by removing some applications you don't need. You may even find that a certain program is causing errors detrimental to your computer's smooth operation and you need to remove it. Whatever the case, it's time to uninstall some programs.

There are some misconceptions about what constitutes removing a program from your computer. Deleting the program's icon from your Desktop does

nothing more than remove the icon—the program hasn't been removed or even changed at all. Even if you navigate to the application's folder in the Program Files area and delete the folder and the files it contains, the program still exists on your computer. In that case, you could still attempt to run the program, but it wouldn't work; in fact, it may even cause an error.

To ensure a program is completely removed from your system, you must follow the steps below. But, before you take the steps necessary to uninstall a program, it's important to understand the behind-the-scenes process of what happens during an installation.

What Happens During Installation

When you install a program, you pop in and run an installation disc or

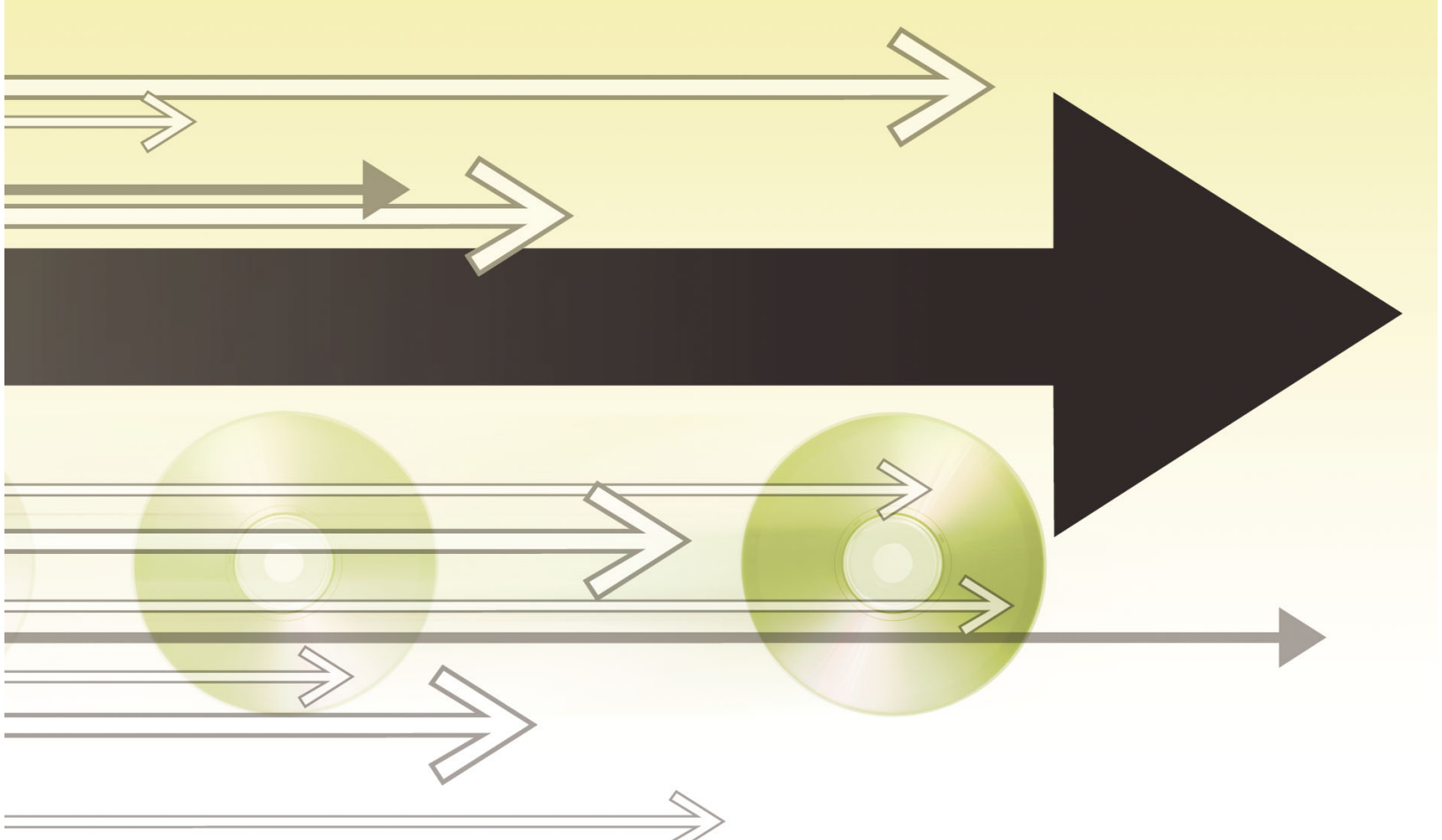
double-click an EXE file (commonly named Setup.exe or Install.exe). Then, the installation program goes to work. It will automatically search for any other versions of the software on your computer and ask if you want to replace that version with the one you're installing. It will then create a program folder in Program Files under Local Disk (C:), although in some cases, you can specify where the folder should be created and install any additional files that the program will need to run. (In some cases, it may automatically download files from the Internet.)

Up next is a scan of your system to make sure you have the requisite hardware, followed by a compilation of entries to the **Windows Registry**, a large database that stores all settings, program options, and hardware configurations for the operating system. Then, the installation file will create paths you can follow to launch the program, such as a spot on the Start menu and a

58 Recover From A
Bad Uninstallation
Get Rid Of Stubborn Leftovers

60 Uninstall Malware
Good Riddance To
Bad Rubbish

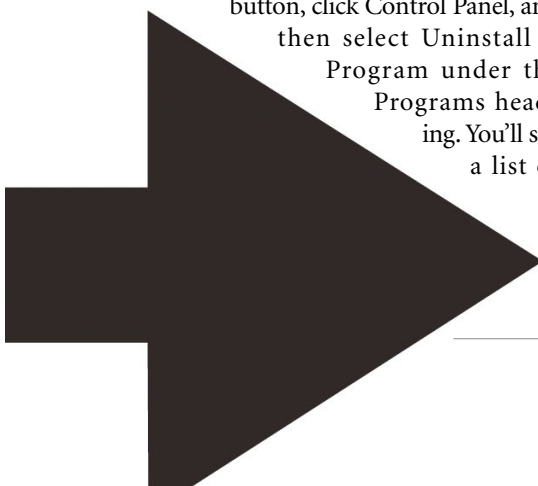
64 Uninstallers To
The Rescue
Kiss Your Software Goodbye



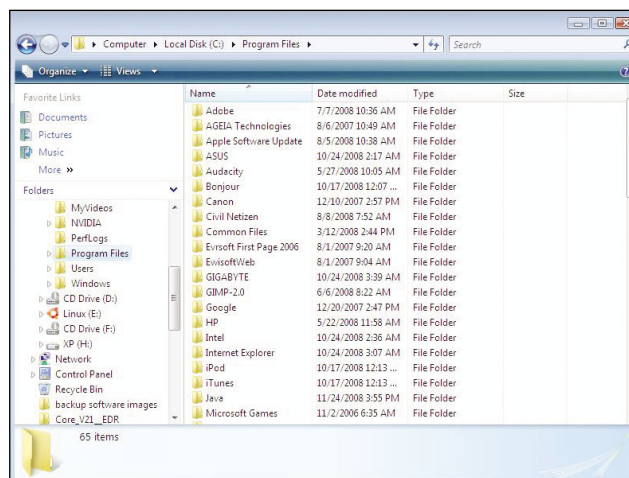
Desktop shortcut, if you desire. Finally, in most cases, you'll be greeted by a setup wizard that lets you configure the settings you prefer for the program.

When you uninstall a program, the uninstaller essentially undoes the entire process outlined above. A warning: When you're happily removing software you don't want, be very careful not to delete anything crucial to the functioning of the computer. For example, items such as Microsoft .NET Framework should be left alone. In most cases, you'll find that you can look up unfamiliar programs with your favorite Internet search engine.

How To Correctly Uninstall Software



In Windows Vista, click the Start button, click Control Panel, and then select Uninstall A Program under the Programs heading. You'll see a list of



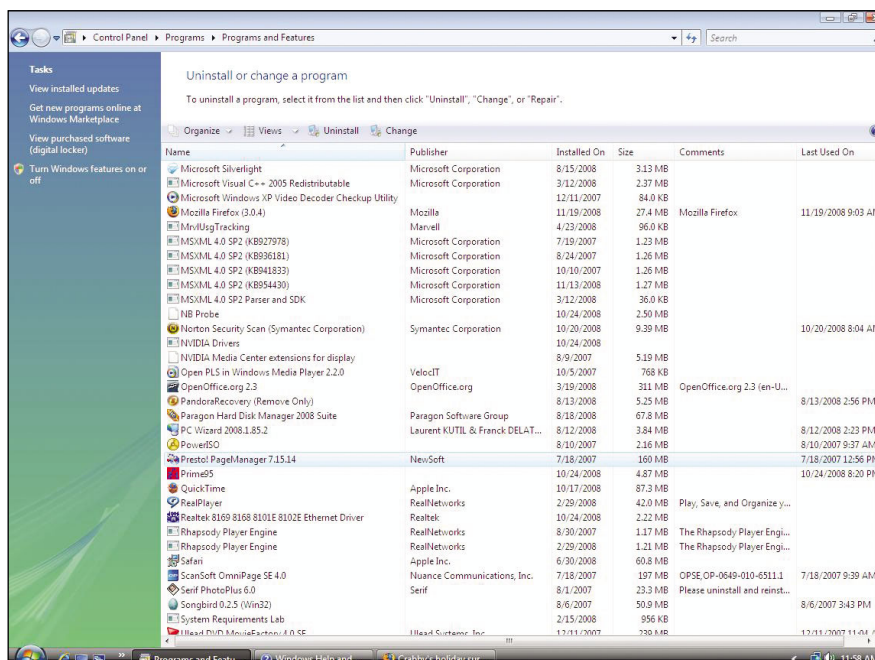
When you install a program, a folder containing any necessary files and subfolders is typically created in Program Files under Local Disk (C:).

all your installed programs in alphabetical order.

At this point, it's important to note that each application may have slightly different ways of uninstalling itself. Because many applications include an install/uninstall component with their program files, the specific interface of the uninstallation (or change or repair) is not uniform. Some applications may run their own

proprietary uninstallers. In other cases, Windows Installer will perform the removal, or the InstallShield Wizard will do it.

Locate a program you wish to remove, right-click it, and select Uninstall or Uninstall/Change. If the program's own uninstaller is activated, follow the instructions given. If you use the InstallShield Wizard, you'll probably be greeted by



From the Uninstall Or Change A Program window in the Control Panel, you can remove, change, or repair programs, as well as discover interesting information about each application.

a dialog box asking Are You Sure You Want To Completely Remove <name of program> And All Of Its Components. Click Yes and wait; when the removal is complete, you'll

see a screen where you can click Finish to close the window.

Conversely, the InstallShield Wizard may look a little different. You may need to right-click an

application, select Uninstall or Uninstall/Change, and click Next when the window pops up. On the next screen, you should have three options: Modify, Repair, or Remove. Click the radio button next to Remove and click Next. On the next screen, click Remove. When the removal is complete, the next screen should say InstallShield Wizard Completed. Click Finish to close the window.

When a removal is complete, an Uninstall dialog box may appear with a confirmation that the uninstall was successfully completed. Click OK to close the window. That's all it takes to delete a program.

There may be even more different looks to the uninstaller you see, but whatever you encounter, the steps to complete an uninstallation are going to be very easy to follow. Just be sure to follow any directions given by whichever uninstaller that particular application uses.

How To Change Or Repair A Program

In some cases, you may want to change the settings for an installed application or, in the case of an application error, you may want to repair a program. As with an uninstallation, right-click an application and select Change. (*NOTE: Not all applications will allow you to make changes or repairs. Some entries only allow you to uninstall.*)

As before, you'll see different interfaces for different programs, but in general, either Windows will automatically bring up the correct window or you should be able to select from options to Modify, Repair, or Remove when the window appears. (In some cases, not all three options will be present.)

Select whichever option you need—in this example, let's say Modify—and click Next. You'll be able to alter your preferences for certain features of that program. Make your selections and click Next. On the next screen, titled

REGISTRY CLEANUP

Whenever you install a program, the installer builds a little library of information in the Windows Registry. Likely due to the fact that Registry cleaners are readily available (in varying degrees of quality), many people regularly use these tools to clean out their Registry. However, it's never a good idea to perform such a task—whether with a Registry cleaning application or manually—if you don't know what you're doing.

The Registry contains items vital to the smooth and successful operation of your computer, and if you delete or modify an item that you should have left alone, your computer could end up with a serious problem.

Granted, Registry cleaners generally know what to delete and what to leave alone, but they're not error-free. The failsafe for that problem is that many of them will submit the edits to you,

the Administrator, for approval before making the changes. However, if you don't know what's acceptable, this isn't a failsafe at all.

Not to worry: When you install or uninstall a program, you probably won't have to tinker with the Registry anyway. If you encounter a serious error, check out the troubleshooting steps in "Recover From A Bad Uninstallation" on page 58. We show you how to remove stubborn programs. ■

Right-click an application and select Uninstall, Change, or Repair to remove or alter a program.

Google SketchUp 6	Google	12/20/2007	52.1 MB
Google Toolbar for Internet Explorer		7/25/2007	3.95 MB
iTunes	Apple Inc.	10/17/2008	87.6 MB
Jav	Sun Microsystems, Inc.	11/21/2007	133 MB
Jav	Sun Microsystems, Inc.	3/19/2008	136 MB
Jav	Sun Microsystems, Inc.	10/17/2008	136 MB
Jav (Java Update to	Sun Microsystems, Inc.	11/24/2008	94.3 MB
Microsoft .NET Framework 1.1		4/23/2008	

something similar to Ready To Modify The Program, click Install (or OK, or Finish, or whatever similar button is displayed).

Repairing a program involves replacing missing or damaged files. If you need to repair a program, the process is the same as above: Right-click an application, but select Repair instead of Change. Again, Windows may perform the task automatically, but a wizard is also likely to appear. If it does, select Repair instead of Modify. Click Next and wait while the application is repaired. Click Finish or whatever similar button is there to close the window.

Items To Consider

Next to each application in Vista's Uninstall Or Change A Program list, you'll see information about each application, such as publisher, date on which you installed the application, and size. Generally, this is enough information for you to make a sound decision regarding whether you want to remove it. However, there is much more information you can view just by changing which items are displayed.

Right-click a blank area within the Uninstall Or Change A Program window and point to Group By. The resulting menu lists the information about each application that is displayed, such as Name, Publisher, Installed On, Size, and more. This list contains only the information that is currently displayed; if you want to see more information, click More at the bottom of the menu.

In the Choose Details window, you'll see a long list of various types of information you can view about each application. Entries include the aforementioned, as well as Contact, Help

Link, Location, Product ID, Readme, Registered Company, Registered Owner, Source, Support Link, and more. If you want to see any of those categories displayed for all applications in the Uninstall Or Change A Program window, check the box next to each entry and click OK. These details can be useful as you evaluate whether to uninstall, change, or delete a program.

No Sweat, No Kidding

The above information is meant to exhaustively examine the process of uninstalling an application and describes the various wrinkles you may encounter. But truly, uninstalling a program is one of the easiest things to do on your computer. The vast majority of the brainpower involved is strictly the realm of the uninstallation program. All you have to do is find a program you want to delete, right-click and select Uninstall or Uninstall/Change, and follow a few simple instructions mostly consisting of clicking OK and Finish. Once you restart your computer, all the traces of the old program are washed away—most of the time.

UNINSTALLING PROGRAMS THAT ARE INCLUDED WITH WINDOWS

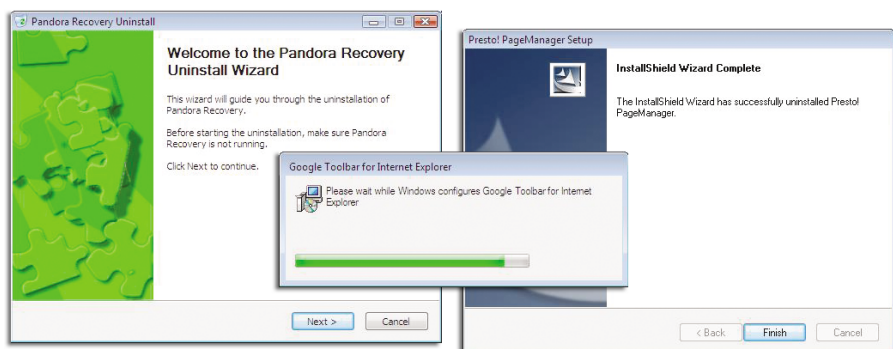
A large number of applications are included as part of every Windows OS (operating system). If you want to uninstall one or more of these, you may find that they aren't located in the Uninstall Or Change A Program list.

In Windows Vista, you can simply turn these applications off instead of uninstalling them. To do so, click Start, click Control Panel, and click Programs. Under the Programs And Features heading, click Turn Windows Features On Or Off. The Windows Features window will appear with a list of applications.

Check the box next to each feature to enable it or uncheck a box to disable a feature. Be wary of disabling features if you aren't sure what they are. However, if, for example, you want to disable Games, you can do so with a clear mind. Simply uncheck the Games box and click OK. ■

Read the next article to learn about bad uninstallations. ■

BY SETH COLANER



You'll encounter a variety of different-looking uninstallers. Some may be the program's own proprietary uninstaller (left), or the quick and simple Windows Uninstaller (middle), or a version of InstallShield Wizard (right). Whichever uninstaller a particular program uses, just follow the on-screen instructions.



RECOVER

FROM A BAD UNINSTALLATION

GET RID OF STUBBORN LEFTOVERS

Whether you use an application's proprietary uninstaller or Windows Vista's Uninstall Programs (Add Or Remove Programs in Windows XP) applet, the uninstallation process isn't always smooth. In some cases, you'll receive an error message that tells you that the application can't be removed; other times, the application may appear to uninstall without a glitch but still be listed in the Windows Start menu or Uninstall Programs applet. So why does some software fail to uninstall properly? According to Jim Thomas, technical support manager for Paragon Software, there are several reasons.

"Sometimes the application has missing files associated with the software's uninstall process, or there are corrupt or missing Registry entries. You'll occasionally find the software components may still be in use by other processes. Conflicting software products can often cause unexpected results when uninstalling programs. Even a bad hard drive sector can prevent

software from being removed," says Thomas.

In this feature, we'll show you how to remove associated Windows Installer files that are blocking program removal, as well as other issues that interrupt the uninstallation process.

Avoid Uninstallation Issues

Before you uninstall an application, you should close all the applications

running on your PC. Programs running in the background may share files in the **Registry** (a database that contains information about your computer's hardware, software, configuration, and preferences) and cause the uninstall program to stop or error out. Some security software, such as your antivirus or anti-spyware program, may interfere with changes to the Registry, so you'll want to

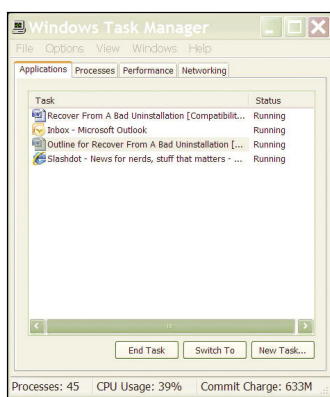
stop the active scanning component or shut down your anti-malware application. To see what applications are running on your PC, hold down the

CTRL-ALT-DELETE keys on your keyboard and click Start Task Manager (in Vista) or Task Manager (in WinXP). Click the Applications tab, select the running program, and click the End Task button. In particular, you'll want to ensure that the program you want to uninstall is no longer open.

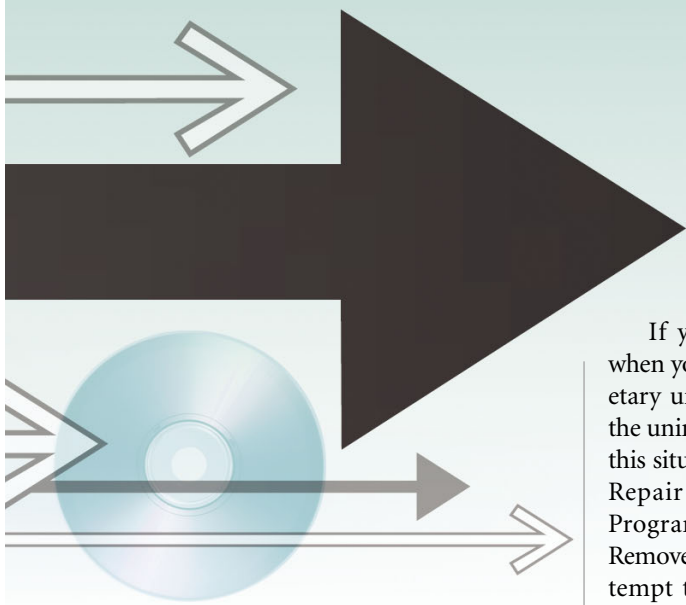
With some programs, it's also critical that you're logged on to the computer as an administrator when you remove the application. If you run WinXP and need to log in under a different account, click Start, select Log Off, and choose Switch User. In Vista, click Start, select the arrow in the far right-hand corner next to the Power and Lock buttons, and click Switch User. Then, enter the username and password for an account with administrator privileges.

Remove The Listing

The Windows Installer is the software utility that most applications use to install, upgrade, and remove software on your computer. When you install a program, the Windows Installer will place files in several virtual locations on your hard drive, including the application's directory folder and the Windows Registry. In some cases, common files will be shared among several programs, and the Windows Installer will make an association with a shared file so that the new program can use the file at the same time as another application. When you install or remove an application, it's possible that the common files may be



From the Applications tab in the Windows Task Manager, you can view and shut down the applications currently running on your PC.



and possible file conflicts—on your PC.

My Uninstaller Is Broken

If you receive an error message when you try to use a program's proprietary uninstall utility, it's possible that the uninstaller itself is not functional. In this situation, it's a good idea to use the Repair function in Vista's Uninstall Programs utility or WinXP's Add Or Remove Programs utility, which will attempt to fix corrupt files, reassociate Registry files, and install missing files. Once you fix the troubled application, you can uninstall it using the program's proprietary utility. Note that not all applications offer a Repair option.

To repair a program in WinXP, click Start and Control Panel. Select Add Or Remove Programs, select the application you want to fix, and click Change. Most often, you'll see a dialog box that lets you either repair or remove the program. Select the Repair option and follow the prompts to fix the program's problems. In Vista, click Start, select Control Panel, and select Uninstall

A Program. Click the application you want to repair. The program may provide a Repair button above the application list, or you may need to click the Change button to bring up the program's propriety repair utility. Follow the wizard prompts to mend the program's issues. After you repair the application, you can then use the program's uninstaller utility to remove the software from your computer.

Files Without A Home

Have you ever removed an application, only to find the application's

empty folders and leftover files still on your hard drive? Over time, the orphaned program files fill up your hard drive and slow down your PC's ability to access files. Microsoft includes a Disk Cleanup utility that removes fragments of files on your hard drive, temporary installation/uninstallation files, Recycle Bin data, and offline network files. Disk Cleanup can also compress old files you haven't accessed in a while to save storage space on your hard drive.

To open Disk Cleanup in WinXP or Vista, click Start, All Programs, Accessories, System Tools, and choose Disk Cleanup. Those running WinXP should note that Disk Cleanup, by default, only runs on the drive where Windows is installed. If you want to run WinXP's Disk

Cleanup utility on another drive location, such as a secondary storage drive, simultaneously press the Windows logo and E keys, right-click the drive you want to scan, choose Properties, and click the Disk Cleanup button. In Vista, you can select the specific drive to scan.

Once the scan finishes, Disk Cleanup generates a Files To Delete list. From the list of junk files, you

can click the checkbox next to the type of orphaned file to select or remove it from the cleanup process. When you finish choosing the files you want to remove, click OK and Yes.

Go Online

If you're still having trouble uninstalling an application, visit the Support section of the manufacturer's Web site. The program may require you to perform a series of steps to remove it. ■

BY NATHAN LAKE



If you've removed an application, but it's still listed in the operating system's Uninstall Programs list, you can use the Windows Installer CleanUp Utility to fix the problem.



UNINSTALL MALWARE

GOOD RIDDANCE TO BAD RUBBISH

What is malware? Why is it bad? How does it get on your machine? How do you find it? How do you get rid of it? Most software removal deals with situations where good software goes bad, and uninstalling is usually a last resort. Malware is different. With malware, we're not dealing with when to give up and how to reinstall. Uninstalling malware is the preferred option and a positive step, rather than a failure of other measures. We're trying to figure out how to find and remove something that shouldn't be there in the first place. With that in mind, we'll discuss what makes malware special, how to find it, how to get rid of it, and to prevent having to remove it in the future.

Malware Basics

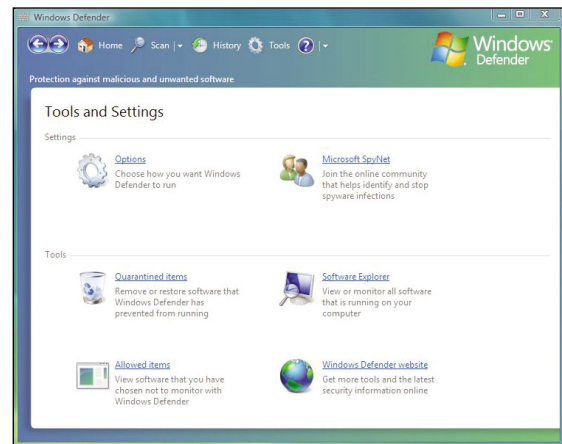
It's difficult to define malware precisely. The word itself, taking liberties with Latin and compounding, means "bad software." The most malicious and well-known varieties include Trojan horses, viruses, and spyware. Malware can also include annoying but mostly innocuous add-ons hidden within other software, marketing ploys (adware) installed with device drivers, and secret tracking cookies placed by

unscrupulous Web sites. For our purposes, we'll define malware as any software you don't want and didn't know you had.

Malware makes its way onto PCs in a handful of ways. Malware can install itself when spread from an infected source, most famously as with viruses or worms. It can install when users are duped into opening infected files (via enticing emails, for example), as with Trojan horses and spyware. Less malicious, but nonetheless worrisome, marketing or tracking software may simply come built in to otherwise legitimate applications, driver utilities, or Web sites.

What can malware do to your machine? In extreme cases, it can render your system unusable and even permanently destroy your hardware or your data. When it's not destructive, malware can interfere with your computer's normal operations. Even before becoming noticeable, malware can spread to other files or machines and "report back" to its

source with personal or confidential information. Certain types of malware do all these things while waiting to deliver their full payloads until a predetermined time or sequence of events. Even the most benign or inert malware is a problem. At the very least, unwanted software lurks in the

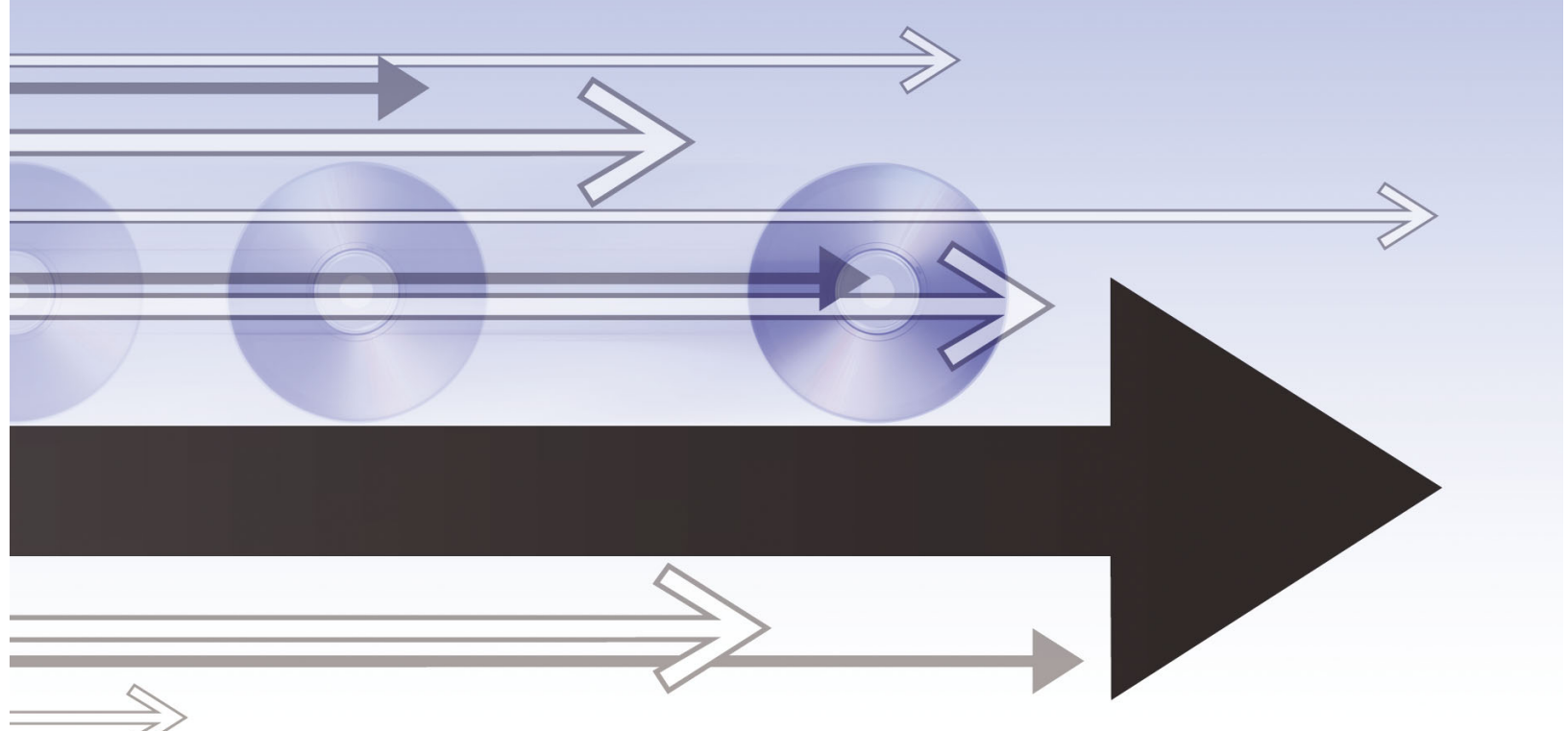


Windows Defender, Windows Vista's built-in antispysware utility, is a useful bulwark against common threats.

background consuming valuable system resources and exposing your machine to external intruders.

Anti-Malware Tools

Normal applications, though they may fail and need to be removed, serve a defined and desired purpose. Removal is



simply a matter of making sure that they don't leave pieces of themselves all over your system. Malware, on the other hand, is hidden and harmful by design, so it requires special tools just to discover it. These tools take several forms, and you're best off utilizing several of them, though they all function with the same basic goal. Anti-malware tools identify suspicious or dangerous files and let you determine what to remove and what should stay. They are both your main defense against malware and your primary mechanism for removing it. The most well-known anti-malware tools include antivirus suites and anti-spyware utilities. The category can also include firewalls, spam filters, pop-up blockers, Registry cleaners, and a few standard Windows components. No one tool covers every threat, and any missing component creates vulnerabilities.

We're going to focus on a few key elements, but you should always consider removing malware a job shared by every part of your system. Plan on running, at a minimum, both antivirus and antispyware applications. You should also run an antispam filter on your email client, maintain a software firewall, activate Windows Defender (integrated into all Windows Vista versions), and make active use of Internet Explorer's Security and Privacy options.

Choosing your tools can be vexing, but they're essential for removing

threats in a timely manner. The first thing to look for is compatibility. Choosing software designed for your OS (operating system) version and recommended for your hardware specifications (including Internet connection type, storage space, and memory) is a

prerequisite. You also need to investigate the functionality of each option to make sure it matches your activities. There's no need to pay extra for heavy-duty IM (instant messaging) protection if you never use any IM software. On the other hand, if you frequently

TIPS TO AVOID MALWARE

Prevention is the best cure. Follow these basic rules to avoid acquiring malicious software in the first place.

Keep your definitions and subscriptions up-to-date. New malware can infect computers with outdated software as easily as machines without any protection. Make sure all your security software, as well as your OS (operating system) and other online applications, receive regular updates and schedule updates automatically, if possible. Don't ignore those renewal notices from any security subscription services—your antivirus software isn't doing any good if it can't update because you let your coverage lapse.

Pay attention to every installation. Malware often sneaks onto systems through the front door. Anytime you're installing anything, especially free or promotional software, read the fine print carefully to make sure you aren't unwittingly installing unwanted add-ons or advertising trackers.

If it seems too good to be true, it probably is. Nothing comes free, and even the cheapest software comes with a price. There's no way to make a million bucks online in one day, and no one is sending you naked pictures of celebrities without an ulterior motive. You should also automatically assume that any pirated or hacked versions of commercial software are not to be trusted.

If you don't know the source, delete. Strangers online almost never have anything valuable to offer. When you get friendly email messages from people or companies you don't know, or when friend requests pop up from people you've never heard of, the best course of action is the quickest: delete or decline. ■

seek out video game tips online, especially from sources of dubious legitimacy, make sure your antivirus and antispyware utilities have aggressive Web filtering features.

Price is another obvious consideration. There are reliable freeware utilities in the anti-malware marketplace, a couple of which are included in our “Tools Roundup” sidebar. Commercial applications, or suites of applications, generally provide broader protection with better documentation and support. You’ll also probably receive more comprehensive and reliable updates for your money. Prices for these products range from \$35 to \$70 for an annual subscription (covering up to three machines).

Your decision will also come down to intangibles. Recommendations and

feels comfortable for you when choosing anti-malware tools.

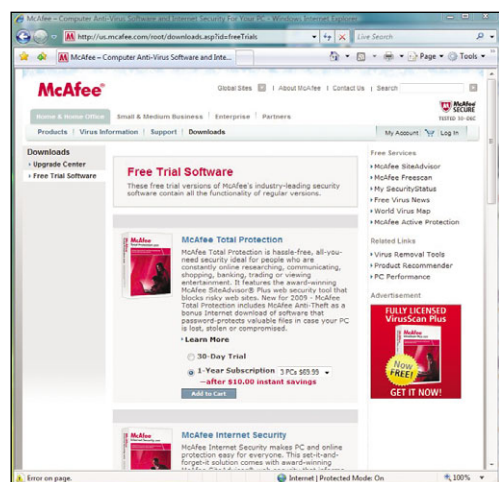
Find & Remove Malware

Proper installation is the first step toward using your anti-malware tools to find and remove malicious software. After choosing your weapons (again, start minimally with an antivirus application, antispyware utility, and firewall), collect your installation discs or download each program. Downloading and saving the installation files works better than trying to install directly from the download, as you can better control multiple installations and save the files for reinstallation later if necessary. After collecting all the files, shut down your machine and physically disconnect your network or modem cable. Boot back up, close down any startup programs, and install each application, one by one. When running each installation, disable any other anti-malware or security software so your various protectors don’t interfere with each other. Reboot between each installation and, when finished, shut down the machine. Reconnect the network or modem cable and boot up again. Open the new applications, in turn, and run their automatic updates to discover and download any newly released patches or definition files.

Finally, visit Windows Update (windowsupdate.microsoft.com) to make sure you have the latest security updates and OS patches.

Turn on Windows Defender by clicking Start, All Programs, and Windows Defender. Click Tools and then click Options to configure the protection you want to enable. Also, configure your IE settings (especially the Privacy and Security tabs in the Internet Options dialog box) to match your preferences and circumstances.

When your tools are set up and ready to go, it’s time to get to work. If all your ducks are in a row, actually finding and



Make use of software vendors’ free trial periods to gauge program usability and make sure the offerings meet your needs.

reviews such as those found in *Smart Computing*, on Web sites, or from trusted peer users should be a part of any informed decision. Make use of online demos or trial offers from the products you’re considering. A clear and intuitive interface makes it quicker and easier to find and remove malware, making your system safer and your computing life simpler. Personal preferences prevent any universal definitions of usability, so pay attention to what

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How To Use This Search:
Are you having trouble repairing photos from your digital camera? Just type in digital camera below to see all the resources we have for solving problems with digital cameras. Don't include words like problems or malfunctions or type in long phrases. Use one- or two-word searches, but don't type in extremely broad terms like windows or computer. Use "Top Subjects" links whenever possible.

Tech Support Center

- Error Messages
- Solutions Knowledgebase
- Basic Troubleshooting Articles
- Security & Privacy
- How To Get Rid Of...
- Backups & Data Recovery
- Preventive & Regular Maintenance
- Networking & Communications
- Articles On How To Install...
- Just About Anything
- Driver Education
- Other Helpful Tech Support Tools
- Try 3 Issues of Smart Computing. **FREE!**

Unsure how to tackle specific malware issues? Check out the Security & Privacy section of Smart-Computing.com's Tech Support Center. Go to www.smartcomputing.com/techsupport and click the Security & Privacy link on the right side of the page.

Our “Malware Primer” provides a detailed overview of all the variety of malware representing the worst of the software world. We also have instructions on “How To Get Rid Of...” a long list of known viruses and worms. If you’re still stuck, peruse the section of Basic Troubleshooting Articles for help figuring out what’s going on with viruses, worms, spyware, spam, or other threats.

If you prefer a collaborative approach or want to lend some expertise to others in need, visit the Q&A Board to pose questions (or answer them) from other users. Don’t forget that *Smart Computing* subscribers can access free email or telephone tech support from 8 a.m. to 8 p.m. (CST) Monday through Friday. ■

removing nuisance software can be the easiest part of the process. Security applications don’t always play nice together—they’re prone to seeing each other as threats—so it’s best to run each scan one at a time, with the other utilities disabled and your network disconnected. Packaged security suites (such as Norton Internet Security or McAfee Internet Security) are exceptions to this rule, though you should run scans for each component of the suite separately,

in turn. Don't be afraid to meddle in the settings and options for each utility. Default settings are convenient, but you should tailor each option to your environment and, at least initially, ensure the most thorough protection available.

Start with an antivirus scan. Perform a full-system scan the first time and then you can scale back to daily or weekly "quick scan" options (though you should occasionally run the full scans, even if they take a little extra

time). Next, run an antispyware scan. Make sure to check for all available threats, including tracking cookies and adware. As with antivirus utilities, you should start with the most thorough option available and then choose faster-running options for your scheduled maintenance scans. Finally, run Windows Disk Cleanup (click Start, All Programs, Accessories, System Tools, and Disk Cleanup), empty the Recycle Bin, and defragment the hard drive

(Disk Defragmenter is also found in the System Tools folder).

Clean Up & Confirm Success

Whether your utilities found a lot of malware or a little, run another series of scans after they all finish. Sometimes removing one layer of problems will uncover another (hopefully smaller) layer underneath. You should also occasionally run a free online scan or test out some demo software, just to make sure your toolset is doing its job. Trend Micro's online HouseCall utility (housecall.trendmicro.com), for example, offers a free scan for viruses, spyware, and other vulnerabilities. If you find your tools consistently missing threats, it's time to do some shopping. Checking your anti-malware utilities against their competitors also provides peace of mind and an extra layer of security.

Finally, check the logs of each security application to verify that you haven't left lingering malware behind. The locations and menu options for log files vary from program to program, but you should be able to find instructions in each program's help file or user guide. Firewall logs are especially useful for ensuring that only approved applications are making connections to and from your machine.

Removing malware is a unique and ongoing challenge. Unlike other software that goes bad, you don't get to uninstall a single program one time and then move on. The battle against malware is never ending and requires constant attention. Thankfully, the job is much easier when you choose the right tools. ■

BY GREGORY ANDERSON

TOOLS ROUNDUP

Tools for removing all different kinds of malware abound. Here's a brief list of popular applications.

Norton Internet Security 2009

www.symantec.com

\$69.99; annual subscription covers up to three PCs

Best known for antivirus protection, Norton's well-rounded security suite also includes spyware protection and a software firewall, as well as antiphishing and antispyware engines.

McAfee Internet Security 2009

us.mcafee.com

\$69.99; annual subscription covers up to three PCs

Trial versions of McAfee come preinstalled on many retail PCs. Paying to make the license permanent is a wise choice. The company's Internet Security suite combines antivirus, antispyware, antispam, and antiphishing coverage with a firewall and data backup utility.

Ad-Aware 2008 Free

www.lavasoft.com

Free for personal home use

Lavasoft's acclaimed Ad-Aware utility helps detect and remove spyware, adware, and other threats. You have to remember to run the free version manually, though, so consider upgrading to a licensed version (\$26.95 to \$39.95) that offers stronger real-time and automated protection.

AVG Anti-Virus Free Edition

free.avg.com

Free for private, noncommercial use

AVG's free antivirus and antispyware application provides basic protection against common viruses and spyware threats. It's best for lightly used (or otherwise well-protected) machines and for users that won't need much help—no tech support is provided. Paid versions (from \$34.99 to \$54.99) provide more features and support.

ZoneAlarm Free Firewall

www.zonealarm.com

Free for individual and not-for-profit use

ZoneAlarm set the bar for free firewalls years ago and still leads the pack. Even the free version hides your machine's details from prying eyes, tracks each application's connection permissions, and logs each communication request. The software automatically checks for updates and has a handy emergency "lock down" that shuts off connectivity in a single click.

CCleaner

www.ccleaner.com

Free

CCleaner is a light, simple, and free Registry cleaner. It's great for cleaning up files and clutter left behind by spyware and advertising applications, as well as for removing unwanted cookies and other temporary browser files. It's also helpful after running through a series of scans to clean up any left-behind Registry entries or orphaned shortcuts.



UNINSTALLERS TO THE RESCUE

KISS YOUR SOFTWARE GOODBYE

One would think that now that we're this deep into the digital age, software installations would be perfected, but often it's where trouble begins. Sometimes files don't get saved to the right places or don't get installed at all. Other times an update goes sour, leaving the program it was trying to fix in worse condition than when it started. And when you get a newer version or a replacement for a program you already have, it isn't always easy to ditch the old version. In all of these scenarios and more, a good uninstaller program can come to the rescue, but you have to know where to find them and how they work to get any use out of these essential utilities.

Understanding Uninstallers

There are two basic types of uninstallers: those designed to work after you've already installed something and those designed to track installations while they happen and then uninstall the software later.

The uninstallers that ship with Windows are designed to work only after something is already installed. They keep track of the software that is installed on the computer so it is all listed

in one convenient place, but they rely on the uninstaller that comes with the program to perform the actual uninstall. This means that when you go to remove a piece of software, you are at the mercy of its uninstaller and must deal with its quirks, limitations, and errors.

The best third-party uninstallers work differently than that. They monitor everything that is added to the computer or edited during the installation process and maintain a database of all those changes. When you go to uninstall a piece of software, you use the third-party uninstaller instead of using the installer that came with the software. The third-party uninstaller then looks up everything it tracked and changes everything back to the state it was in before the program was installed. Everything that was added to the computer is removed (no matter where it was stored), and everything that was edited is reverted to the way it

was before the installation took place so that no trace of the software is left on your computer.

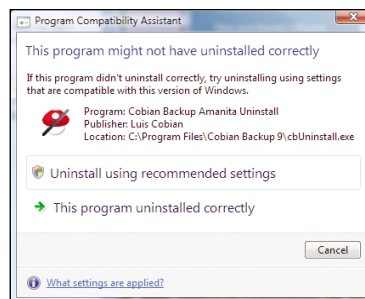
Problem Programs

Some types of programs are more likely than others to leave pieces behind when they are uninstalled. Antivirus and antispyware programs are at the top

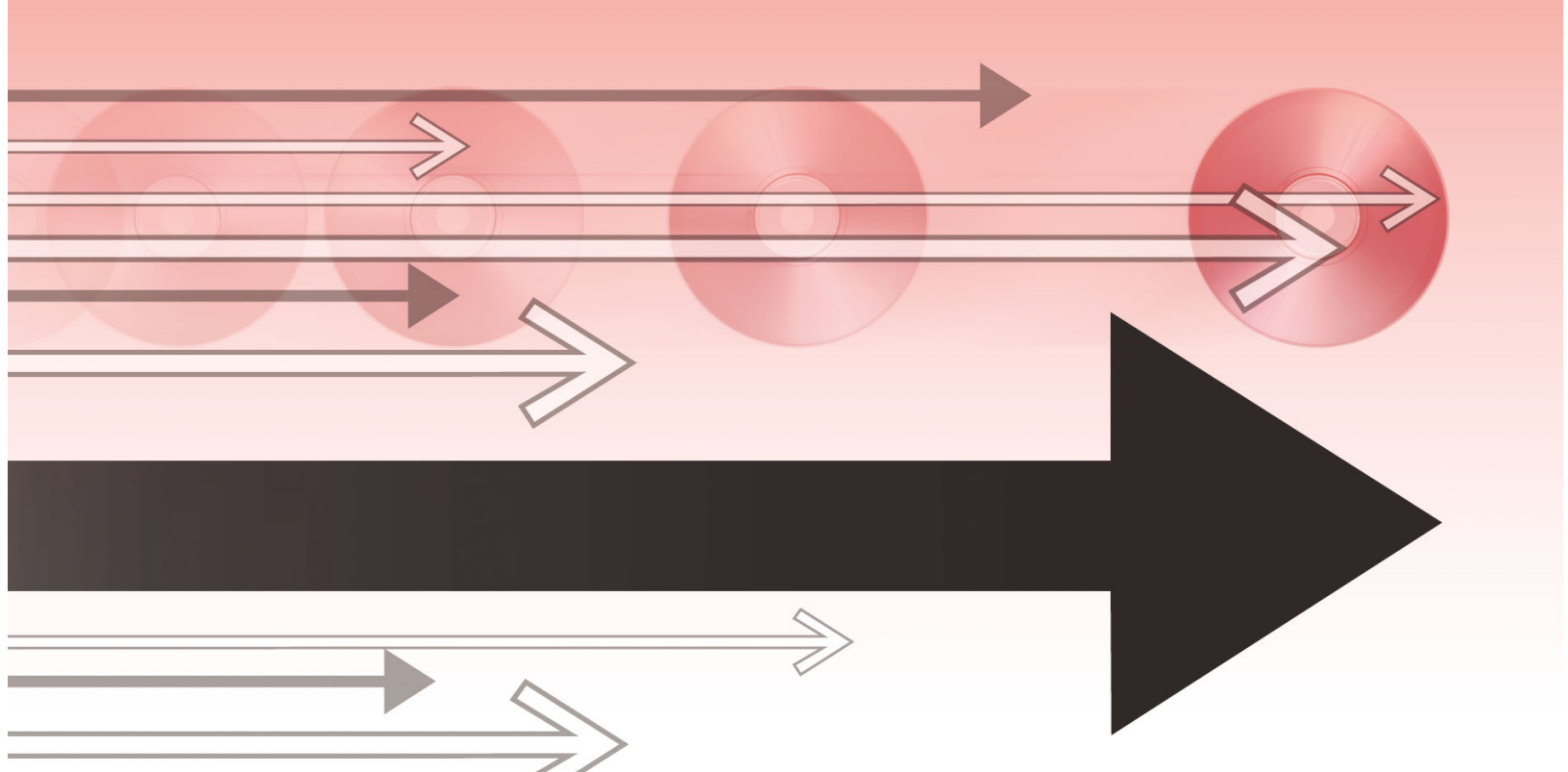
of this list, as they often install portions of themselves in places that other programs don't go near. This problem is also common in software suites containing several applications that are all designed to share data with one another. Sometimes you only uninstall one program when you intend to unin-

install the entire suite, or the program that is used to share data among the applications is accidentally left behind after the uninstall.

Whenever you are uninstalling these types of applications, we recommend you use the uninstall utility that came with the program. In the case of antivirus software, also check the



If you see a message such as this while uninstalling, there's a good chance that only a third-party uninstaller will fix things.



manufacturer's Web site to see if an uninstall utility is available that will completely remove the software from your computer. We'll cover two such programs in the how-to section.

Surgical Uninstall

Uninstalling doesn't necessarily mean ripping an entire program off your hard drive. Many programs—Web browsers particularly—support add-ons that can be uninstalled without uninstalling the entire program. For example, several toolbars are available from Web sites such as Google (www.google.com) and Yahoo! (www.yahoo.com) for the Internet Explorer Web browser that can be individually removed without disturbing the rest of Internet Explorer.

Software suites such as Microsoft Office also deserve some extra attention when discussing uninstalling because they consist of several components that can often be removed separately while leaving the rest of the suite intact. We'll discuss how to get rid of specific types of programs, including browser add-ons and software suites, later in this article.

Uninstall How-To

There are so many ways to uninstall software and so many different types

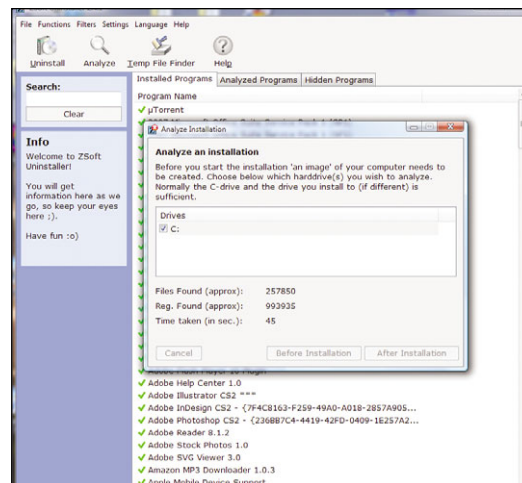
of software to uninstall that we can't cover everything in this article, but the most common types of uninstall procedures are described in detail in this section.

Basic uninstalling in Windows Vista. When removing a program you installed in Vista, always click the Start button, click All Programs, and look in the folder for the program you want to remove to see if it has its own uninstaller. If you don't see one there, click Start, click Control Panel, and click Uninstall A Program in the Programs section. Wait for Windows to generate a list of installed programs, click the program's entry on the list so that it is highlighted, and then click Uninstall or Uninstall/Change.

The next step varies depending on the type of uninstaller that came with the software. In most cases, an InstallShield Wizard appears and then a window pops up asking if you want to completely remove the selected application and all of its features. Click OK, follow any other prompts that appear, and double-check to make sure the program no

longer appears on the Programs And Features list.

Basic uninstalling in Windows XP. Uninstalling software in WinXP is very similar to the procedure Vista uses.



ZSoft Uninstaller can analyze the computer before and after a program is installed so it can later undo every addition and change that program made to the computer.

Click Start, click All Programs, open the folder associated with the program you want to remove, and see if an uninstall option is available. If it isn't, click Start, click Control Panel, and click Add Or Remove Programs. Wait for the list to populate, click the entry for the program you want to remove so that it is highlighted, and click Remove.

As with Vista, the steps available after clicking Remove vary depending on the uninstall utility provided with the software, but in most cases, you'll see a message asking if you want to completely remove the selected application and all of its features. Click OK,

follow any additional prompts, and check the Currently Installed Programs list to make sure the program no longer appears there.

Uninstalling using third-party software. Two big problems with the uninstall utilities built into Vista and

WinXP are that they are slow and they don't offer many options. If you want complete control over uninstalling software, we recommend you use a third-party utility, such as ZSoft Uninstaller (free; www.zsoft.dk/index/software). There are definitely more powerful uninstallers available, such as Ashampoo UnInstaller 3 (\$49.99; www.ashampoo.com), but ZSoft provides a great, free way to learn more about how third-party uninstallers work.

To use ZSoft to uninstall a program that is already installed on the computer, click Start, click All Programs in Vista or WinXP, expand the ZSoft folder, expand the Uninstaller folder, and click ZSoft Uninstaller. Make sure the Installed Programs tab is selected, click the program you want to remove on the list so it is highlighted, and click Uninstall. The uninstall utility that came with the program then launches so you can follow the prompts and remove the program.

ZSoft Uninstaller also has a feature that lets you monitor the computer when a program is installed and then completely remove the program later using ZSoft Uninstaller instead of the uninstaller that came with the program. This obviously won't work on programs that are already installed, but in the future before you install a program, open ZSoft Uninstaller, click Analyze, select the Analyze An Installation radio button, and click Next. Check the box next to the hard drive where the program will be installed (usually this is C:) and click Before Installation. Wait for the analysis to complete, which may take several minutes depending on how many programs are installed on your computer's hard drive. You'll know it is finished when the After Installation button becomes available—but don't click it yet.

Install the program according to the instructions it came with and when that process is complete, return to the Analyze Installation window and click the After Installation button.

UNINSTALL APP OVERVIEW

Want access to an uninstall utility that provides more power and flexibility than the tool that comes with Windows? The following four products represent some of the best values available in this category.

Ashampoo Uninstaller 3

\$49.99

www.ashampoo.com

The latest version of this product has a much-improved interface relative to its predecessor, which is a blessing because loads of options are available. You can set it up so an Installation Monitor runs in the background, automatically noting changes in the computer that take place when programs are uninstalled so everything can be undone. You can also manually create these log files and then load them later to restore your computer to the state it was in before problematic software was installed. Novices can pretty much install the software and forget about it, but nearly every aspect is configurable so that power users will also get a lot of use out of this application.

Revo Uninstaller

Free

www.revouninstaller.com

Considering Revo Uninstaller's impressive feature set, it's difficult to believe the software doesn't cost a dime. At its most basic, you can use it as a really fast version of the uninstall utility that comes with Windows, and it also lets you easily remove entries from the installed programs list that shouldn't show up because they've already been removed. The real strength of the program, however, is Hunter Mode. This puts a translucent icon on the Desktop that looks like a target, and you can drag the icon over any program icon to

see information about where it is installed and to get options for easily uninstalling it without having to open the uninstaller and select it from a list.

Your Uninstaller! 2008 Pro

\$39.99

www.ursoftware.com

When this program launches, users can choose between Basic Mode and Pro Mode, and both offer plenty of power. In Basic Mode, the Clear It button gets rid of entries that shouldn't be there, and an AutoFix button helps get rid of installations that went awry and won't properly uninstall. Pro Mode adds a lot of icons to the top of the interface that let you clean up the Start menu and access Windows System Restore, among other options. The highlight of the program is its Advanced Uninstall utility, which helps uninstall programs that don't show up on the add/remove programs list and fix problems that crop up when you try to reinstall software.

ZSoft Uninstaller

Free

www.zsoft.dk/index/software

One of the nice things about Zsoft Uninstaller is that there's nothing fancy about it at all. It doesn't take up a lot of hard drive space, it loads nearly instantaneously, and it lists installed programs much faster than the uninstall utility built into Windows can manage. It can also analyze the computer before software is installed so that the software can be completely uninstalled later.

Another analysis is performed, and at the end of it, an Enter Application Name box appears. Type the name of the program you just installed, wait for the Comparing Please Wait message to disappear, and the program is added to ZSoft Uninstaller's Analyzed Programs list. If you want to remove that program, open ZSoft Uninstaller, select the Analyzed Programs tab, click the entry for the program you want to remove, and click Uninstall. You can also right-click an entry and click Show Recorded Info to see a list of the system changes that were recorded if they are necessary for troubleshooting.

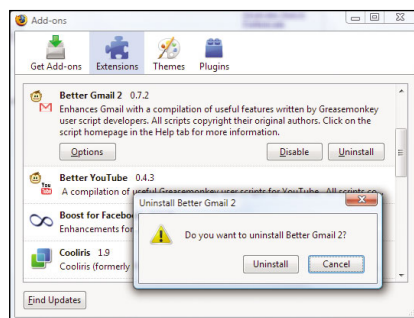
Uninstalling Web browser toolbars. To uninstall a browser tool-bar, click the Start button and select All Programs. Check if a folder for the toolbar is available and look for an uninstall option. If there is no uninstall option, you will need to launch the browser in question.

In Internet Explorer 7, open the Tools menu, expand Manage Add-ons, and click Enable Or Disable Add-ons. Select Add-Ons Currently Loaded In Internet Explorer using the Show drop-down menu and then click the name of the add-on you want to remove. Select the Disable radio button in the Settings area and then click OK to remove the highlighted add-on from Internet Explorer.

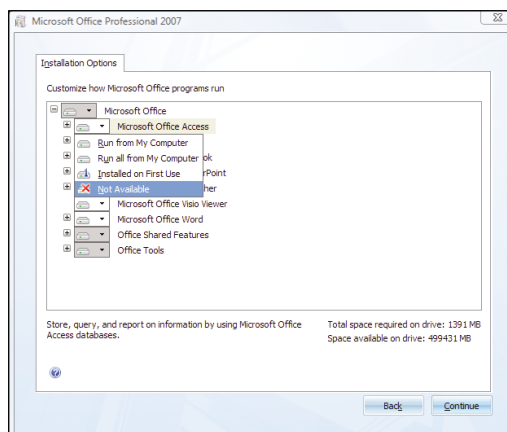
If you use Firefox 3, click the Tools menu, click Add-Ons, and select the Extensions tab. Click the name of the toolbar or other add-on you want to remove and click Uninstall to permanently get rid of it or Disable if you want to turn it off but have access to it later.

Uninstalling Microsoft Office. The basic techniques described here work for most software suites, but we'll focus on Microsoft Office 2007 in particular because it is so common. If you want to remove a particular application from this suite, first follow the instructions for Vista or

WinXP that are provided earlier in this article, but instead of clicking Uninstall in Vista or Remove in WinXP, click Change. Select the Add Or Remove Features radio button, click Continue, and use the drop-down menus next to entries you no longer want to use to select Not Available. Red X icons appear on everything that will be removed, so click Continue, wait for the Configuration Process to complete, and



Browsers have built-in utilities for removing add-ons that you no longer wish to use.



You can remove individual components of Microsoft Office without having to get rid of the entire suite.

then click Close when everything is finished.

Uninstalling antivirus programs. Normally, you can use the uninstall utility that comes with an antivirus program or use Windows' add/remove software utility to handle this task, but always check with the manufacturer's Web site to see if a

removal tool is available. If that's the case, download the tool and follow the instructions it comes with exactly. For example, some removal tools must be used before you use the antivirus software's built-in uninstall utility, while others are designed for use after you've performed a normal uninstall.

A good example of this is Symantec's Norton Removal Tool, available at tinyurl.com/7eqv8. Running this tool will wipe every trace of Norton 2003/2004/2005/2006/2008/2009, Norton 360, and/or Norton SystemWorks 12 from your hard drive, and separate step-by-step instructions are available for all of these packages that must be followed precisely, or the uninstall procedure may fail.

Dealing With Leftovers

Using a typical uninstaller virtually guarantees that there will be some remnants left on the hard drive when a program is uninstalled. Often, these do nothing more than consume an insignificant amount of hard drive space, but sometimes they leave things behind that trip up your other software or make Windows run slower. Another problem is programs that don't uninstall properly at all remain in the Windows Programs list and take up a lot of hard drive space, even though they no longer work. A common way to solve this problem is to reinstall the software and then try to uninstall it again, but some problems go deeper than that and there are a lot of other programs and tips that come in handy when you're dealing with a failed uninstall.

We don't have room to discuss all that here, but you can read "Recover From A Bad Uninstallation" on page 58 for complete details. ■

BY TRACY BAKER

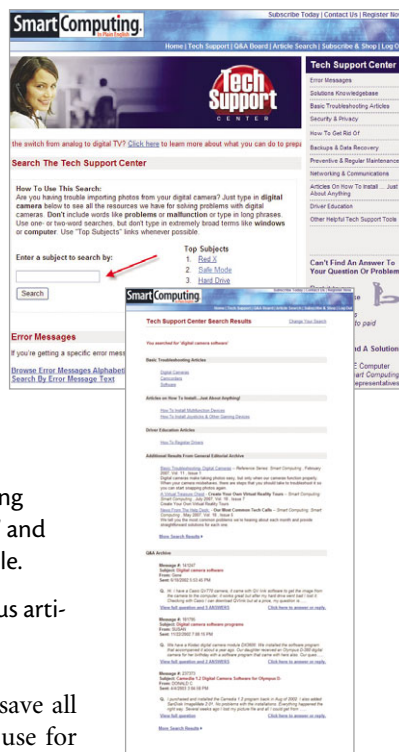
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Decipher those cryptic error messages and find out how to remedy the problem at the *Smart Computing* Tech Support Center. Click Error Messages in the gray box on the right side of the Tech Support Center to start tracking down a solution.

Error Message



A Taste Of Things To Come



Check out the Next Month's Articles Online Now section of our home page to get a preview of what's coming in the next issue of *Smart Computing*.

Now section of our home page to get a preview of what's coming in the next issue of *Smart Computing*.

Keep In Touch

Visit the Networking & Communications section of our Tech Support Center to find tips for setting up, fixing, and maintaining your networks.



Smart Computing's Tip Of The Day (Dec. 7, 2008)

Before you purchase computer software, such as a game or a greeting card creator, be sure to check the system requirements, which are generally listed on the side or bottom of the software box. Oftentimes, you will see two lists of system specifications: minimum system requirements and recommended system requirements. Verify that your computer meets the minimum system requirements for the software, but try to take the recommended requirements into account. If you meet the recommended settings, the program will run more smoothly. Attempting to run the program on the minimum settings may result in slow response times, reduced graphics settings, and difficulty using the software's most advanced features.



Browsers

Quick Studies

How To

Bookmarks

Beginner

Dial Up Favorite Sites With One Click

A big list of browser bookmarks is great, but you probably find yourself going to the same small handful of Web pages more than the rest of your bookmarks combined. A special bookmarks page featuring only your top sites can save time and clicks over hunting through a gigantic list.

If you've ever used the innovative alternative browser Opera (www.opera.com), you've probably seen Speed Dial, a special page that appears whenever you open a new tab. Speed Dial displays thumbnails of nine favorite sites. To visit one of the sites, click its thumbnail or press CTRL and a corresponding number key.

Google's Chrome browser includes a similar feature that displays thumbnails of your most-visited sites. Whatever pages you view most often show up on the grid, and they rise or fall based on their current ranking.

A quick thumbnail favorites page similar to what you find in Opera or Chrome is a time-saving way to navigate. Fortunately, users of Internet Explorer or Firefox don't need to feel left behind. A handful of add-ons provide similar functionality to other popular browsers.



Speed Dial

Speed Dial (speeddial.uworks.net) is very similar to Opera's Speed Dial, right down to the name. The Firefox add-on gives you a special bookmarks page that includes thumbnails of nine

of your favorite sites arranged in a 3-by-3 grid.

Speed Dial starts out with a blank grid with squares labeled one through nine. You click different boxes and fill out the pop-up windows to assign Web pages to their spots. Once a box is linked to a site, the program downloads a current thumbnail. To head to one of the sites, click the thumbnail or press CTRL and a number between one and nine.

Speed Dial shows up automatically when you open a new browser window. You can also set it to display whenever you open a new tab or make Speed Dial your home page. For real speed, skip loading the page and just use the CTRL keyboard shortcut for the bookmark you want to use—it works even when the Speed Dial page is not being displayed.

Fast Dial

Fast Dial (userlogos.org/extensions/fastdial), also for Firefox, seemed a bit clunkier to us than Speed Dial, but it offers additional features.

As with Speed Dial, Fast Dial appears as a grid of thumbnails when you open a new tab. Fast Dial includes links to a few automatically generated thumbnail pages, such as a grid of your most frequently visited sites. To add or change a thumbnail, you can right-click the spot where you want it to appear, click Add, and choose URL. Enter the site's address in the pop-up box.

Fast Dial lets you keep—and view—many more thumbnails than what would fit on a single screen. You can set up entire thumbnail sub-folders to organize bookmarks in different ways, although all that clicking and drilling down somewhat defeats the purpose of a quick links page. Fast Dial also works with existing Firefox bookmarks; when you bookmark a site and add the bookmark to the Fast Dial folder, it will appear on the Fast Dial thumbnail page.

Tidy Favorites

A third add-on, and one that works with multiple browsers, goes well beyond simply displaying thumbnails of bookmarked sites. Tidy Favorites (www.tidyfavorites.com) installs a couple of buttons in your browser toolbar that add favorites and pull up a special Tidy Favorites page in the main window. Add a bookmark, and a thumbnail for that page appears in the sidebar of the Tidy Favorites window. You can then drag the thumbnail to one of several tabbed pages and organize them by moving them around and even resizing the pictures.

Tidy Favorites provides a more visual bookmark experience, but we found the program a bit cumbersome. Loading up the Tidy Favorites window takes longer than opening a standard new tab, and making the thumbnails large enough to see what they represent means you won't be able to fit very many on a page.

Tidy Favorites includes many other features, such as the ability to select what specific portion of a Web page becomes the thumbnail. If you're simply looking for a way to access a few important pages, however, you'd probably do best with Speed Dial. ■

BY ALAN PHELPS

Fast Dial is one of a handful of browser extensions that will display thumbnail pictures of your favorite Web sites on blank tabs for quick navigation to the pages you use the most.

Online

Sync, Access & Share Files With Live Mesh

Live Mesh

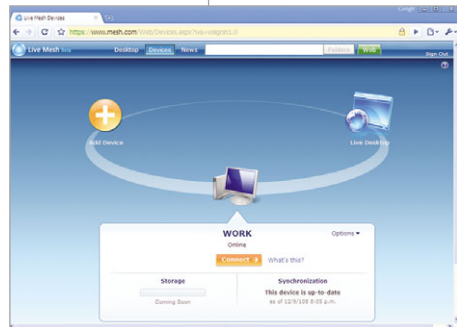
Intermediate

Sometimes, it's easy to forget that Microsoft was once considered a monopoly. The idea of storing and manipulating files out in the amorphous Internet "cloud" seems to continuously gain ground over the Microsoftian notion of storing and using files locally using standalone word processors, email clients, and other desktop software.

As the tide shifts, you might ask whether the Redmond giant's days of domination are over. One of Microsoft's answers is something called Live Mesh (www.mesh.com). The new beta service is a free collection of tools that aims to give users access to their files—and even their entire computers—from any Internet-accessible device.

In a nutshell, Live Mesh connects your PCs, Macs, smartphones, and other devices to 5GB of free online storage offered by Microsoft. You can synchronize files among your devices or share them with others. You can access the files from any Web browser and even take full control of your computers from afar.

Microsoft isn't the first company to dream up tools such as this, and it's not even the first to implement the idea. But in our test run, Live Mesh appeared to be well-designed and user-friendly. And like all networking tools, it also becomes more valuable as more people use it—and Microsoft is one company that can deliver users.



Microsoft is gradually bringing its new Live Mesh service online, which promises to make your files accessible from any computer or mobile device.

Mesh Making

Try Live Mesh by heading to the Web site. If you already have a Windows Live ID or a Hotmail account, you can sign in using the same ID and password. Once through the gate, you'll see a slick screen with your Live Mesh devices arranged in a circle. Click a device to bring it around to the front so that you can connect to it and work with its files and folders.

If you're just starting out, click the orange Add Device button to add a new device. You will need to download and install client software on each machine you want in your mesh. (At press time, the only type of device you could add was a Windows PC. The Mac version of the software

was in limited beta testing, and Microsoft promised a mobile device client soon.)

After installation on each device, a Live Mesh icon appears in the System Tray on each PC. Click that icon to sign in or out of the service and configure other settings.

Syncing or sharing a folder through Live Mesh is as simple as right-clicking any folder and choosing the Add Folder To Live Mesh command. Whenever you are signed in on a particular device, the folders you've set to sync turn blue. That means that Live Mesh is active, and changes you make to the folder will be reflected across your mesh. Sign out and the folder turns to a yellow hue.

Any file you put in a synced folder is automatically uploaded to the Live Mesh Online Desktop, as well as other computers with that same synced folder. Any file changes you make while offline will be uploaded the next time you sign in.

Share Alike

Once a folder is part of your mesh, you can right-click for additional options, such as inviting users to share a folder. A shared folder becomes part of each person's mesh. Depending on the permission levels you set, everyone will be able to upload, edit, and download files using the shared folder.

When you open a shared folder, you'll also see a second window that holds a running stream of user-supplied news about that folder. The News pane provides a good spot for exchanging comments about the files stored within a folder. Anyone who shares a particular folder can leave comments in the News section for others to read.

Coming Together

Live Mesh should not be confused with SkyDrive (skydrive.live.com), Microsoft's straightforward online storage service. Other Windows Live tools, such as the Office Live Workspace and Windows Live Hotmail, also had no obvious connections to Live Mesh at the time of our testing. Eventually, it should all come together into one all-encompassing Microsoft online environment. Microsoft's days of absolute dominance may be over, but don't expect it to simply fade away. ■

BY ALAN PHELPS

Microsoft Word 2007

Quick Studies

How To

Position Images In Word: Part I

Word Processing

Intermediate

WinXP/Vista

In the course of composing a document, you may want to use an image, such as a photograph or a company logo. For complex layouts, you should use a desktop-publishing program, but Microsoft Word 2007 is more than adequate when all you need to do is to place a few images.

In its user interface, Word 2007 calls every image a Picture. This may seem to imply that you can only place photos in Word documents, but that's not the case. Word 2007 can work with common image file formats including bitmaps, such as JPEG (Joint Photographic Experts Group), GIF (Graphics Interchange Format), and BMP and vectors, such as WMF (Windows Metafile) and CDR (CorelDRAW).

Place An Image

First, we need to place an image. Create a new Word 2007 document and copy some text into it. We will need the text later when we learn about text wrapping.

Position the cursor in the middle of a sentence or paragraph. Click the Insert tab on the Ribbon. Click the Picture button in the Illustrations group. The Insert Picture dialog box opens, showing the contents of your My Pictures folder. You can also browse to other areas on your computer if the image you want isn't in the My Pictures folder.

The dialog box will, by default, show you all of the images that are compatible with Word

2007. If you want to restrict your search to a particular file type, for example JPEG, click the file type drop-down box at the bottom of the dialog box and choose the type you are looking for.

Click any JPEG image (we will use a pure vector image in next month's article) and then click the arrow on the Insert button. Three options help you choose how to insert the image: Insert, Link To File, and Insert And Link. Insert embeds a copy of the image directly in the document. Link To File creates a link to the image rather than embedding it. This can be useful if you want to keep the file size of the document low, especially if you are going to place several

images. If you move the linked image to a new folder, however, Word won't be able to find it and will give an error message. Choosing Insert And Link ensures that you will always have a copy of the image even if the image is moved. Word 2007 will automatically update a linked image that has been edited in a different program as long as Word can find the image (meaning you haven't moved the image and aren't, for instance, working on another PC).

The image as originally placed will probably not be the size you want. To resize it, click one of the corner handles and drag it. You can also designate the size using numbers by selecting the image and typing in values in the Size group on the far right of the Format tab that appears on the Ribbon.

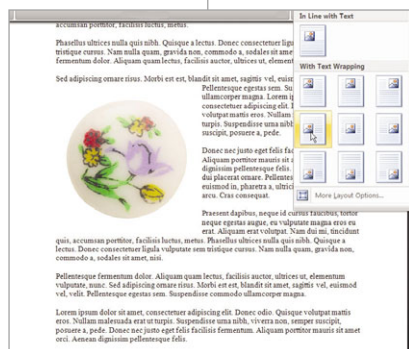
Inline Position Is Default

Word places an image in the inline position by default. This means that the image is treated like any other character in a sentence. If you add or delete text, the image will move along with the changes. To have text wrap around the image, first select the image and then locate the Position and Text Wrapping buttons in the Arrange group on the Format tab.

Next, click Position. New to Word 2007 is a pane divided into two groups: In Line With Text and With Text Wrapping. The thumbnail images show you what to expect if you choose one of the selections. Live Preview works with these selections (if you have it turned on), so you can see what each selection would look like when you hover the cursor over it. This is a quick way of positioning the image and applying word wrapping. If one of these selections fits your need, you're done.

You may need more refined positioning and wrapping options, however. In that case, click Position and More Layout Options or the Text Wrapping button. The latter button also lets you choose More Layout Options. Whichever way you choose, the Advanced Layout dialog box opens. Next month we will talk about this more precise way of positioning images, as well as how to edit wrap points. ■

BY TOM HANCOCK



The thumbnails provide a quick way to position an image in a document with text wrap.

Adobe Photoshop Elements 6

Photomerge Group Shot

Image Processing

Advanced

WinXP/Vista

The last time we discussed Photoshop Elements, we walked step-by-step through creating a Panorama using Photomerge. The Photomerge editing command helps users pull together the best bits of several photos to create a single superior image. This month we'll take a look at another option in the Photomerge toolkit: Group Shot.

Pick The Shots

The Group Shot option may be the Photomerge tool you use most often. It seems nearly impossible

to shoot the perfect group shot: One photo inevitably features a person with his eyes closed while another has someone frowning. If you could just blend the two together, you'd have a perfect photo. If you took the photos in succession using essentially the same camera

position and lighting, you can use Photomerge to create a more satisfying composition.

First, open Elements to the Editor workspace. Open the photos you want to blend or drag them from their folder to the workspace. Hold down the CTRL key and click the photos you'd like to merge. Select File, New, and Photomerge Group Shot.

The Editor window changes to display two boxes: Source and Final. Find the best photo in the Bin and drag it to the window labeled Final. This is the base photo for the merge. Next, click another photo in the Bin as the Source photo. From here you'll take the bits you'd like to merge into the final image.

Start Scribbling

For our example, we used two photographs of a child with her grandmother, taken at the same time

so we had the same lighting and posture. We chose the photo where the grandmother's eyes are closed as our base and dragged it to the Final box. Next, we clicked the other photo in our Bin as the Source, because in this shot, grandma's eyes are open and we wanted to take those open eyes for our final image. Before you start taking similar bits in your photo, go to the upper left of the main window and increase the Pencil's size—the default is a fine line and until you get the hang of it, there's no need to be delicate. Click the Pencil tool in the Edit pane and draw a line over the open eyes or other elements you'd like to use from the Source photo.

The pencil leaves a blue line behind as you draw over the photo. If you need to add more bits and pieces, use the Pencil to scribble some more. If you want to clear away some of the scribble, click the Eraser tool to remove some of those scribbles. If you use more than two photos, Elements frames each photo in a different color and uses the corresponding color for each photo's scribbles. This helps you stay on track as you manipulate images.

Release the tool by releasing the mouse button and sit back for a second. If you blink, you might miss Elements complete the automatic alignment. Prepare to be surprised by how well it works.

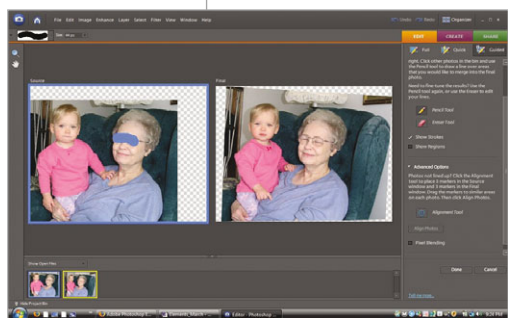
Advanced Moves

If the photos aren't completely lined up, you can use the Advanced Options segment on the Edit pane to tweak it. Click the Alignment tool (represented by crosshairs over a circle) and place three markers on the Source photo and three in the Final photo, essentially in the same place. Click Align Photos.

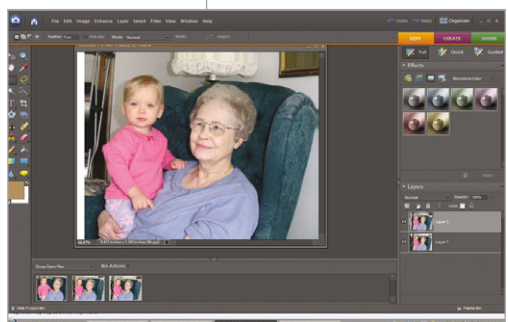
Although the Alignment tool can work, we found it sometimes resulted in some seriously wacky images. With more practice we might do better, but as you start out, we recommend clicking Undo if you're unhappy with the merge or clicking Restart to give it another go instead. When you're satisfied with the final product, click Done to complete the Photomerge or Cancel to close it.

Photomerge Group Shot is one of the most useful tools in the Elements kit. With just one tool, you can seamlessly replace a sour expression in one shot with the happy smile from another. ■

BY ANNE STEYER PHELPS



Use the Pencil tool to scribble on the part you want to merge with the final image.



After the Photomerge, grandma's eyes from the source appear in the final seamlessly.

Quick Tips

Secrets For Succeeding In Common Tasks

BY STEPHEN J. BIGELOW

802.11

Question: Will an 802.11g NIC (network interface card) work with an 802.11n router?

Answer: The 802.11 standard was intended to be backward-compatible, allowing older iterations of the standard to interoperate with newer products. This works by allowing the newer products to auto-negotiate with the older products and find a slower operating mode that both devices can agree on. So, an 802.11g NIC should work with an 802.11n wireless access point (router) and vice versa.

However, there are some caveats. First, the faster (newer) device must be configured to auto-negotiate—if the device is configured to only operate at its fastest mode, it will not recognize or negotiate down to the slower (older) standard. If you cannot get the two devices to interoperate, that's the usual problem.

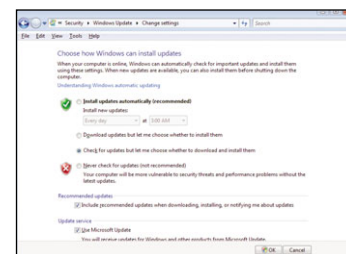
Next, while wireless standards are backward-compatible, wireless security standards are not—all devices must use the same wireless security to communicate on the same secure wireless network. For example, an 802.11n access point can usually support WPA2 (Wi-Fi Protected Access 2) security, but an 802.11g NIC may only support WEP (Wired Equivalency Privacy). So even though the two 802.11 standards should be able to communicate together, the use of different security standards makes this difficult. You would need to reduce wireless security to a standard that all devices support (such as the older, weaker WEP) or disable wireless security entirely. Because weaker security is usually not desirable, one solution is to upgrade the older device to one supporting the newer standards. However, if upgrading devices is not an option, remember that implementing an older security standard is better than no security at all.

Automatic Updates

Question: How can I keep Windows Vista from automatically updating my PC?

Answer: Use Windows Update to control the way that Vista updates. Click Start, Control Panel, and System And Maintenance. Locate the Windows Update area and select Turn Automatic Updating On Or

Off. The recommended option is to download and install updates automatically, but you can opt to let Vista just download the updates (without installing them) or only notify you when updates are available. Select the update feature that is most convenient for you and then click OK to save any changes.



Configure Windows Vista to update your PC using the method that is most convenient for you.

Power Protection

Question: What is the difference between a power surge and a power spike? What type of power protection is best for my PC?

Answer: A **surge** is typically a brief increase in AC voltage levels that can last for several seconds (such as the powering on and off of high-powered appliances), while a **spike** is a sudden short burst that can sometimes hit tens of thousands of volts (such as a lightning strike). Both anomalies are potentially dangerous to your PC's power supply, but surges are often mitigated by the supply's regulating circuit. The brief high-voltage nature of spikes is much harder to stop and is more often

the cause of damage. Most protective power devices will help to guard against spikes.

You can buy an inexpensive surge protector (also called surge suppressor) for your AC outlet, but many of these are single-use devices. Watch the indicator on the surge protector. If the protector indicates that it's been tripped (a surge/spike has been blocked), it may be necessary to replace the protector. It may be better to invest in a UPS (uninterruptible power supply) that can guard against repeatable surges and spikes, as well as brownouts, which are temporary, partial losses of power.

Drivers

Question: How can I tell how old my display driver is or if a new display driver is available?

Answer: In Vista, click Start, Control Panel, and Hardware And Sound. Locate Device Manager and select Update

Device Drivers. When the Device Manager opens, expand the hardware entry in question, right-click the desired device, choose Properties, and click the Driver tab. You will see the date and version number of the drivers. If you want to update the

drivers, click the Update Driver button and select Search Automatically For Updated Driver Software. This will search your PC and the Internet for possible updates. If updates are available, you can opt to install them.

Uninterruptible Power Supply

Question: How can I silence the alarm on my UPS so I can keep working?

Answer: While some industrial-grade UPS systems may allow you to disable the alarm, most commercial SOHO (small office/home office) UPS systems don't provide that option. Most SOHO UPS systems are not intended to be a long-term substitute power source. Instead, they

provide a few precious minutes of uptime in order to save your work and shut down the PC in an orderly manner. Once the system is off, just turn off the UPS until normal power is restored.

If you want to continue working in the face of a power outage, consider an inexpensive backup generator or switch over to laptops that can work for several hours from battery power.

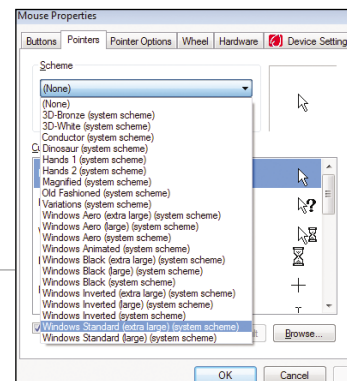
Peripherals

Question: How can I make the mouse pointer easier to see in Windows Vista?

Answer: Vista provides a variety of mouse pointer options. Click Start, Control Panel, locate the Hardware And Sound entry, and select Mouse. Click the Pointers tab and then use the drop-down menu to select a Scheme that

is easier to see, such as Windows Standard (Extra Large). Click Apply and OK to save your changes. You can easily go back and try other pointer settings later.

Select the mouse pointer style that is easiest for the PC user to see.



Networking

Question: What's the difference between a hub and a switch?

Answer: Both devices pass network traffic, and they can be used together on the same network. A hub is a device that groups wired PCs (or other network devices) together in one area with just a single cable back to the rest of the network. For example, if you have several users in one room, you can tie them all into a hub and use a single cable from the hub back to the router or switch.

The problem with a hub is that it is a repeater, so traffic into the hub will be repeated to all the other devices connected to that hub. On slower networks, this can lead to poor performance. A switch is more advanced, separating the network into segments so that traffic into the switch is sent only to the port (segment) where the destination PC or device is installed. Each port (segment) can support different traffic so network performance is often better.

For most homes/offices with just a couple of users, each PC or network device attaches to a switch port included in the broadband router, so hubs are rarely used in small environments. However, if you have several devices in the same area and want to reduce cabling, you can cable a switch port to a hub near the various devices and then cable the devices to that hub. Today, wireless networks make these kinds of wiring considerations moot.

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Spimming

Just over four years ago this month, Anthony Greco became the first person arrested on suspicion of sending spam via instant messaging.



Top Tips

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From *Smart Computing's* Dictionary

radio button

A circle that represents choices in a common option list form in graphical user interfaces. Only one item in a list with radio buttons can be selected at a time. To select an item in such a list, the user clicks the radio button in front of the desired option, and a dot appears in the circle of the radio button to show the option has been selected. The name radio button comes from the fact that these buttons are similar to those on a radio; choosing one automatically undoes the previous choice.





Memory Card Readers

Last month in Tidbits (page 78), we told you all about flash memory cards, those ubiquitous little wafers used for data storage in digital cameras, MP3 players, digital photo frames, and smartphones. This month, we'll tell you about the readers, or drives, that let you access memory cards with your computer.

A reader is to memory cards what a DVD drive is to optical discs, or what an old floppy drive is to diskettes. Actually, "reader" is a misleading term. It's only half right because a memory card reader is also a memory card writer. Not only can you use a reader to open photos, songs, or documents stored on a flash memory card, but you also can save changes you make to them. What's more, you can move new files to the card using a so-called reader.

To use a reader, you install it in or connect it to your PC, depending on whether it's an internal or external

model. Next, insert a flash card supported by the reader. Don't try to force it in; if the card doesn't go in easily, it might be upside down or in the wrong slot.

If everything works correctly, Windows will automatically recognize the device and card. You may see an AutoPlay window asking you what you want to do with the files on the memory card; at the very least, you will see a new drive letter in Windows Explorer.

When you're done using a card, click the Safely Remove Hardware icon in the System Tray and then select the description of the flash memory card from the list that appears. In Windows XP, the icon has a green arrow; in Windows Vista, look for a check mark in a green circle. When Windows tells you it's safe to remove the memory card, either pull it out of the reader or press a nearby eject button to push the card out. With some readers, you need

to push the card in slightly and then let it pop out.

You'll find readers that support all kinds of flash memory cards, from the extremely popular SD (Secure Digital) to Memory Stick, CompactFlash, and xD-Picture Card (eXtreme Digital). Depending on the cards your digital camera and other devices use, however, you might need to look for a reader that covers a specific subtype of card, such as the SDHC (SD High Capacity) and microSD variants of SD. Another example is the Memory Stick family, which over the years has included PRO, Duo, PRO Duo, and MagicGate versions. Because of this fragmentation, the number of card types readers must support has multiplied. Thus, vendors can claim that their readers support 52, 65, or even 74 card formats, even though they only have five or six physical slots.

Let's take a look at the main types of readers on the market.

Internal Readers

Most internal readers screw into a 5.25-inch (CD/DVD) or 3.5-inch (floppy) drive bay. These generally connect to a USB header (set of pins) on the PC's motherboard. Other internal readers are permanently mounted, such as the ones integrated into notebooks.



Rosewill's RCR-IC002 (\$16.99 online; www.rosewill.com) is an internal reader that fits in a drive bay.

External Readers

The majority of card readers are external, passive adapters. Because memory cards don't require a lot of energy to read and write, external readers typically get all their power through a USB connection.

Some readers resemble USB flash drives. These usually specialize in just one or two types of cards. Practically speaking, you can use such a reader as a USB drive if you leave a card in it all the time.

If your notebook's built-in card slots don't cover your needs, consider an ExpressCard or PC Card adapter. It might take up less space in your laptop bag than an external USB reader.



Rosewill's portable RSD-CR106 reader (\$12.99 online) looks like a USB flash drive with a card slot.



Belkin's Hi-Speed USB 2.0 15-in-1 Media Reader & Writer (\$39.99; www.belkin.com) is a typical external model.



AFT's PROExpress-7 (\$34.99; www.atechflash.com) fits in a recent notebook's ExpressCard slot.

What To Do When Your Computer Enters Reduced Functionality Mode

In Vista's early stages, Microsoft announced the Software Protection Platform, which is designed to safeguard its users from various forms of piracy and counterfeit software. The goal in implementing validation programs was to withhold important features from illegitimate users of Vista and include enhanced features only for genuine and licensed copies of Vista. This enactment was designed to protect the rightful owner of a legal copy of Vista, but even legal owners could accidentally trigger Vista's Reduced Functionality mode, which prevents them from taking full advantage of the OS (operating system).

Because Reduced Functionality is a built-in security measure, do not be alarmed if you see the following notification appear:

Activate Windows Now.

Your activation period has expired and Windows is no longer working. To use Windows you must activate this copy of Windows.

This message indicates that you're running Vista in Reduced Functionality mode. You'll notice that the Taskbar is not available and that you cannot access particular programs, system-boosting features, and interface enhancements in Vista. You should still be able to use your Internet browser.

Why Me?

Although Vista is implementing a safety precaution by placing your PC in Reduced Functionality mode, these system limitations can be frustrating and confusing. You might not know why your PC has changed its operating state. Happily, Microsoft explains the reasons behind Vista acting up.

Failing to activate your product within the required 30-day period will trigger Reduced Functionality. Also, if Vista identifies that your PC components have been altered significantly (such as hardware replacement) and that you didn't reactivate Vista during the three-day grace period, your PC will operate at a reduced capacity. Using a nongenuine copy of Vista is another cause for Reduced

Functionality mode. If you believe you might be accidentally running a pirated copy of Vista, see our "Counterfeit Or Genuine?" sidebar.

These actions will result in two slightly different states of Reduced Functionality mode: out-of-grace and nongenuine. Your OS is running in out-of-grace mode if you missed one of the activation grace periods for your retail copy of Vista. Failing to reactivate Windows after changing either the original manufacturer motherboard or non-OEM motherboard will restrict you to out-of-grace mode, as well.

The other mode, nongenuine Reduced Functionality, occurs when



Counterfeit Or Genuine?

Vista might be in Reduced Functionality mode for another reason: You may have purchased a counterfeit copy of Windows without knowing it.

Reduced Functionality mode is Vista's way of keeping you safe, and you can never be too cautious about rogue software. To protect yourself from these types of scams, be sure that you avoid non-Microsoft.com downloads, rebundled software, and discounted "Microsoft" products from unfamiliar sources. Auction Web sites, spam messages, and street vendors are all possible distributors of bogus software. Beware of imitation packaging that mimics authentic versions of Vista. ■

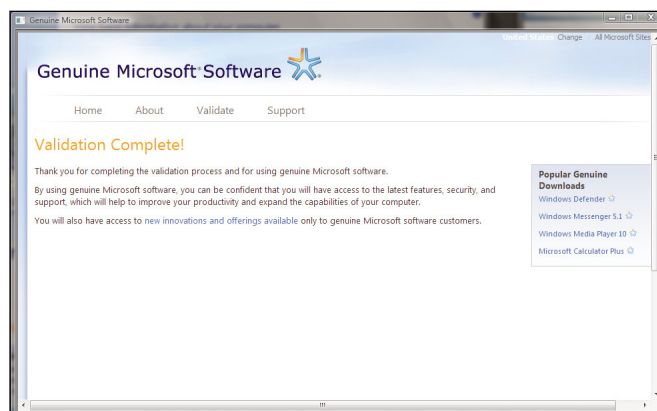
the WGA (Windows Genuine Advantage) program is aware of a counterfeit or blocked product key. WGA uses product activation and online validation to authenticate your licensed version of Vista. If WGA discovers faulty or modified activation files, Vista will enter nongenuine Reduced Functionality mode.

Some Restrictions Apply

There are particular actions you won't be able to perform when Vista is in out-of-grace or nongenuine Reduced Functionality mode. Namely, you won't be able to use the Vista Aero Glass interface feature or ReadyBoost (for memory expansion)

page. Next, click the Continue button under Validate Now and follow the prompts to install WGA, if necessary. If you're running a genuine version of Vista, Windows will display the Validation Complete window in the Genuine Microsoft Software box. If your copy of Windows fails the validation test, you'll be redirected to a Web site informing you about the possible causes of this problem. Microsoft will also suggest options for remedying the issue. For instance, you might qualify for a free replacement copy of Windows, as determined by Microsoft. Or, you can visit the Genuine Advantage Support page which provides recommendations for troubleshooting.

After authorizing your copy of Vista, the Validation Complete window will appear to confirm that you've completed the Microsoft validation process.



in Reduced Functionality. Built-in games (Freecell, Minesweeper, Solitaire, etc.) will be restricted in out-of-grace mode, also, and you won't be able to stay logged on to Vista for more than one hour. Additionally, BitLocker (full disk encryption) will be missing if you find yourself in out-of-grace mode.

Return To A Functional PC

Before you can take steps toward returning to full functionality, you'll need to confirm that you indeed have a WGA version of Vista.

To verify the authorization of Vista, go to www.microsoft.com/genuine and click Validate Windows, which will take you to a new Web

page. It may be necessary to re-enter your product key as your first troubleshooting method. If the Activate Windows Now pop-up message appears while you're in Reduced Functionality mode, click Retype Your Product Key. Next, you'll need to respond to the Uses Acceptance prompt. Lastly, locate your Vista installation disc holder and find the product key sticker on the packaging. Type in the product key for Vista.

In addition to retyping your product key, you have the option to activate Vista through an automated telephone system. To begin this method, click the Start menu, Computer, and System Properties. Select Click Here To Activate

Windows Now inside the Windows activation section. Windows may ask you for an administrator password to confirm your identity; type your password, if necessary, and click Continue. Next, select Show Me Other Ways To Activate. Now you'll choose Use The Automated Phone System. Take note of the instructions that follow to continue the troubleshooting process.

Another course of action will require you to install Windows Vista SP1 (Service Pack 1), if the above-mentioned steps result in no change. Keep in mind, however, that this resolution applies only if your copy of Vista is operating after the activation period has expired.

After you boot up Vista in Reduced Functionality mode, click Access Your Computer With Reduced Functionality. Next, you will need to open your Internet browser and type one of two URLs for either the 32-bit (tinyurl.com/yv6xct) or 64-bit (tinyurl.com/7bhjga) versions of Vista. Choose the version you originally installed on your machine and then go to the site. Here, you will follow the instructions to download Vista SP1. Once installed, you will encounter a prompt to activate Vista again.

Feeling Normal Again

Don't forget that you can always contact Microsoft for further assistance if you are not able to return your PC to full functionality with the suggested fixes in this article. Call toll-free using the Microsoft Activation Centers Worldwide Telephone Numbers, which you can find at tinyurl.com/24uep.

Try every option available to you and get some additional assistance when you find that it is necessary. Then, your system should begin running properly, providing access to all your familiar features, applications, and programs. ■

BY JOANNA SAFFORD

How To Fix Common Problems With Firewalls

Everyone likes to have control over their lives. And with a firewall, you can have greater control over the data your PC receives and sends via the Internet, which helps prevent malicious software from gaining access to your PC. A firewall can automatically block (or allow) an application from communicating online, so you can manage the programs that are and aren't free to transmit data. We'll help you resolve the most common problems with firewalls to ensure that your firewall is keeping the bad stuff out and the good stuff in.

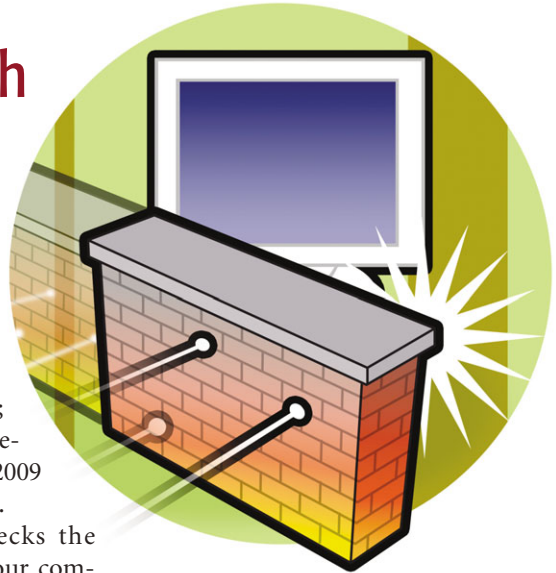
Define Your Firewall

It's quite possible that you have multiple firewalls on your home network. Microsoft integrates the Windows Firewall into Windows XP (included with the Service Pack 2 update) and Windows Vista, and many routers offer built-in firewall functionality to provide hardware-based protection. Typically, hardware firewalls are better at handling Internet traffic than software firewalls because a hardware firewall won't compete with the applications on your PC, and it can't be disabled by malware. A

software firewall may be an individual application or part of an existing Internet security suite, such as Norton Internet Security 2009 (\$69.99; www.symantec.com) or Zone-Alarm Internet Security Suite 2009 (\$49.95; www.zonealarm.com).

Because the firewall checks the Internet traffic that enters your computer, a malfunctioning firewall can cause some real trouble when it stops working, including accidentally blocking all Internet access to your PC. With a hardware firewall, you should first try resetting the router to its default settings. Most routers include a pinhole-sized Reset button, so you can simply insert a paper clip to reset the firewall settings. If resetting the router doesn't work, it'd be wise to upgrade the firmware, which is the program that's stored in your router's memory. Router manufacturers often release updated versions of the firmware that fix issues and add new features to routers; updating the firmware may immediately repair the problem or provide a way to fix it.

To determine if your router is using the most current firmware, open your

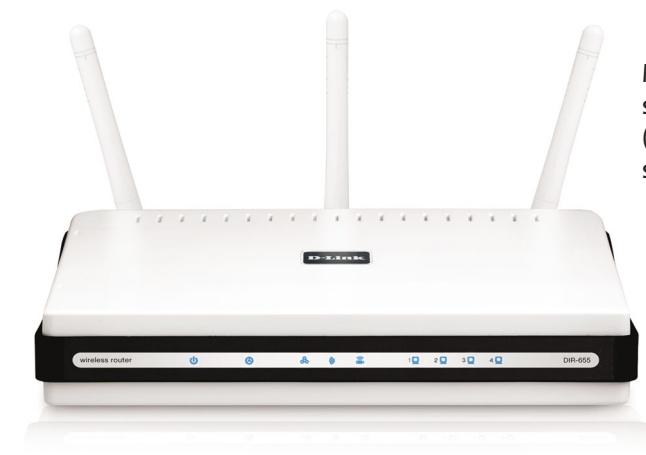


Web browser and enter your router's IP (Internet Protocol) address into the Address Bar. Consult the users manual for your router or visit the manufacturer's Web site (locate the Support section) to find the IP address, which should feature a listing similar to 192.168.1.128. You'll also need to know the login information for your router because you'll enter a login name and password when you first load the router's administrative console. Generally, the firmware version will be listed in the corner of the router's console page. Next, visit the manufacturer's Web site and locate the Support section to see if there's a more recent firmware version. If there is a new version, save it to your computer's hard drive.

The process for updating a router varies by manufacturer, as well as by model, so you'll want to check the users manual for the appropriate way to install the update. That being said, many newer models offer a built-in update feature in the router's console. For instance, on most D-Link routers, you'd select the Tools menu, select Upgrade, choose Browse, and open the folder where you saved the file. Click Update Firmware Image and after the update is complete, click Continue; the router will reboot.

To determine if a software firewall is blocking your Internet access, simply turn off the firewall. For

From a router's administrative console, you can configure the settings on your firewall.



Many newer routers, such as the D-Link DIR-655 (\$129.99; www.dlink.com) seen here, integrate a firewall.

example, to turn off the Windows Firewall in Vista, click Start, select Control Panel, choose Security, click Turn Windows Firewall On Or Off, and select Off. If Internet access returns, you'll need to make adjustments to the firewall (see next solution) to allow the applications to communicate with the Internet.

Problem: One of the applications on my computer can't send to or receive data from the Internet.

Solution: The current security climate often means that many firewalls are, by default, aggressive about preventing apps from freely transmitting data. In some cases, you'll need to make an exception, also called opening or forwarding a port, in your firewall to allow a program to send and receive Internet requests. But before you can allow the application's connection, you'll need to know the port number or the set of port numbers the program uses so you can open those ports. Programs typically list the port or ports in the app's configuration settings, and you can also visit the manufacturer's Web site to find the application's default ports. A program that requires Internet access, such as an online game or video conference software, has a port assigned to it, and when the application accesses the Internet, the router directs Internet access to the application through that port number. For example, by default, iTunes is configured to use port 3689, while the default port for Internet traffic is 80.

To open a port, enter the configuration settings of your router or software firewall and unblock the port. Typically, you'll find the port settings under a section similar to Port Forwarding or Applications And Gaming—of course, the title differs by manufacturer. On most hardware-based firewalls, you'll need to enter the application name and the range of ports it's allowed to use. Alternatively, many software firewalls now let you block or allow an entire program, rather than selecting a specific port you want to open. We'll walk you through forwarding a port in Norton Internet Security 2007 to help you get a better idea of the process. Open Norton Internet Security and click the Settings heading. Click the Personal Firewall link, select Configure, and from the Program list, select the application you want to allow Internet access. Click the drop-down menu under the Access heading and select Allow. To prevent unauthorized use of the program, many software firewalls let you configure additional rules, such as blocking inbound communication, to provide greater control of the application's freedom to access the Internet.

To set an exception in the Windows Firewall, click the Start button, select Control

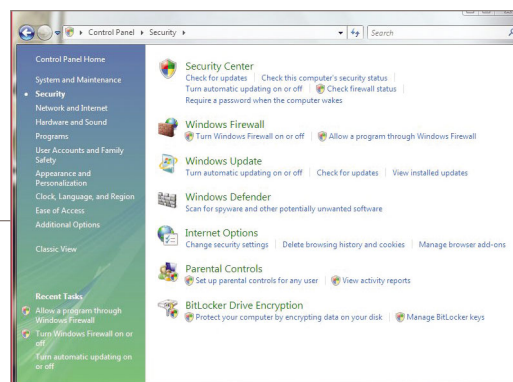
If your PC is connected to the Internet but an application can't access it, turn your software firewall off to see if it's causing the problem.

Panel, and click Security. Select the Allow A Program Through Windows Firewall link and click Continue if the User Account Control message appears. At the Windows Firewall Settings window, select the Exceptions tab and locate the program you want to allow free inbound traffic. Click OK.

Problem: My firewall frequently sends alerts to my Desktop.

Solution: Many software firewalls produce alerts whenever an application or Internet access has been blocked, which helps you trace the cause of the problem. You may often see the alerts if your ISP (Internet service provider) regularly pings the cable modem to test the speed of the Internet service. The same problem may occur when you visit a Web site with ads because your Web browser may send a request to the ad server that sends back a ping to your PC. Generally, the pings are safe and don't require any extra attention. If a repetitive alert annoys you, you can make an exception for the IP address, which will stop the firewall from blocking that IP address' access. However, check with your ISP to make certain the IP address is safe to allow.

Some software firewalls may also generate alerts whenever you visit a Web site that generates third-party cookies, which are cookies (small files used to track where you go and the preferences of a Web site) delivered from a source outside the Web site you're currently visiting. Because third-party cookies often intrude on your privacy, it's a good idea to let your firewall automatically block the cookie. That



said, you can turn off the alerts if they bother you. For example, to do so in the ZoneAlarm Internet Security Suite 2009, open the ZoneAlarm Control Center, select Privacy from the Main tab, and in the Cookie Control box, click the Custom button. Uncheck the Show Privacy Advisor box and click Apply to allow ZoneAlarm to block the cookies without generating alerts.

Problem: I can't print when my firewall is active.

Solution: Your firewall is blocking your PC's access to resources on your home network. If you use the built-in Windows Firewall, it's typically necessary to allow File And Printer Sharing to print to network printers. In Vista, click the Start button, select Control Panel, and choose Security. Click the Allow A Program Through Windows Firewall link, choose the Exceptions tab, and click the checkbox for File And Printer Sharing from the Program Or Port list. In WinXP, click the Start button, choose Control Panel, and double-click Security Center. Click Windows Firewall, the Exceptions tab, and the checkbox for File And Printer Sharing. Allowing file and printer sharing will also let you access the folders and files shared by other computers on your home network.

Problem: I get an error message that my PC is running more than one firewall.

Solution: Although most experts recommend using both a hardware- and software-based firewall, you shouldn't simultaneously run two software firewalls. They may conflict with each other and make it difficult to manage application rules. If you must choose between a third-party firewall and the Windows Firewall, we suggest that you use the third-party product. The Windows Firewall integrated with WinXP SP2 can only block data from coming into your PC, not outbound traffic. And the Windows Firewall in Vista can block data being sent out of your PC, but to do so, you must configure outbound protection. Alternatively, most third-party firewalls automatically block



Some applications let you set the port number so you can configure which port you open on your router.

suspicious applications from transmitting data from your computer.

Problem: I'm connected to the Internet but I can't load my Web mail account.

Solution: Depending on the security level of your software firewall, the security application may be blocking Web mail's ability to send data to your PC. Many software firewalls include features, such as antiphishing and antipublicity, that may see your Web mail as a threat. Most software firewalls let you create a list of Web sites that are safe, such as ZoneAlarm's Trusted Zone, so you can maintain security policies without losing access to your favorite sites.

Problem: My software firewall no longer functions.

Solution: It's possible the firewall may no longer function, but in many cases, spyware and viruses will purposely turn off your firewall so the malicious program can use the Internet to freely communicate data with a system hacker. First, uninstall and reinstall your Internet security suite to rule out application error. If the firewall still doesn't work, run your antivirus and antispyware software to remove the infection. After you remove the infection, it's wise to uninstall and reinstall your software firewall, in case the malware damaged it.

Problem: I turned off Windows Firewall, but now Windows produces warnings that Windows Firewall is disabled.

Solution: Windows can be pushy about ensuring that your PC is protected, but at least Microsoft lets you turn off the messages. In Vista, click the Start button, select Control Panel, choose Security, and open Security Center. Select Firewall and click the Show Me My Available Options link. Select the I Have A Firewall Program That I'll Monitor Myself option to stop the alerts.

Problem: I want to raise the security level of the firewall on my router.

Solution: Most routers let you choose from a Low, Medium, High, or Block All security level. The Block All feature is handy if you want to limit users to a few key apps—for which you'll need to make exceptions in the Block All security policy. For example, if you wanted to restrict Web surfing for your child but allow access to the PC's email client, you could configure the email client as an exception to control the child's Internet access while you're away.

To change the security level of your router, open your Web browser and enter the router's IP address. From the administrative console, locate the firewall settings and find an area where you can configure the security level. When you select a security level, the console will typically list the type of connections the level will and won't allow. Generally, a High setting severely limits both inbound and outbound data (Web browser access and email are allowed), while a Medium setting blocks all inbound and some outbound traffic. The Low setting usually allows all outbound traffic but most inbound is restricted.

Support Groups

If you've tried our solutions and the firewall still isn't functioning, take time to look through the Support section of your firewall manufacturer's Web site. There's a lot of info available for hardware- and software-based firewall issues, including how-to articles that can help resolve specific problems. ■

BY NATHAN LAKE

How To Install A Wireless Printer

Freedom is good. Freedom without losing your security is simply phenomenal.

A wireless connection can free you up to put your printer in another room, where its noise won't disturb you. Or, if you like, you can set up the printer in a central location that's easy for everyone to access but to which it would be hard to run a network cable, such as in front of a pillar in the middle of the office.

On the other hand, you know that if you run a WLAN (wireless local-area network), you most assuredly need to protect it with strong encryption such as WPA (Wi-Fi Protected Access) or WPA2. A wide-open, unsecured network will mean that your neighbors will be able to use your Internet connection

without paying for it, potentially leaving you responsible for anything they download. Even worse, someone could intercept your credit card details and other sensitive information as you shop or fill out forms online. These are good reasons to be choosy about security features when you're buying a wireless printer.

HP's OfficeJet Pro L7780 (\$499.99; www.hp.com) is a good example of a printer that has strong security features. The L7780 is an all-in-one inkjet printer, scanner, copier, and fax machine. It supports 802.11b/g, which are the



two most popular types of wireless networks. (Because the newer, faster 802.11 Draft N wireless specification is backward-compatible, a Draft N network will also support the printer, although not at full Draft N speed.)

Hence, the L7780 can connect to multiple PCs without cables through a wireless router instead of to a single computer with a USB cable like an ordinary printer. And although an Ethernet-compatible printer can do the same with a cable connection to a Wi-Fi router, a wireless model such as the L7780 doesn't have to be physically tethered to the network.

More impressively, the HP L7780 supports WEP (Wired Equivalent Privacy), WPA, and WPA2 encryption. This means that you won't have to compromise or water down your wireless network's security in order to add this printer to it.

Printer Assembly

We'll assume you already have a wireless network set up with your existing router or access point. We used a Linksys WRT54G-TM router to set up an 802.11g 54Mbps WLAN with WPA encryption to simulate a common,



A cool feature of the HP OfficeJet Pro L7780 is its built-in 802.11b/g wireless support, which is compatible with encryption methods up to WPA2.



Our existing 802.11g wireless network was hosted by a Linksys WRT54G-TM router.

run-of-the-mill wireless network.

1) First, unpack the OfficeJet Pro L7780. Use the included quick start booklet to identify the parts you'll need to assemble and to see where and how to install them all. Remove all the pieces of tape and packing material from the printer; you'll have to lift the scanner lid and print cartridge access door to find them all.

2) Next, set the printer on top of the lower paper tray and then snap the duplexer module into the rear of the unit. Press the control panel's faceplate into place. Insert the document feeder tray into the top of the scanner lid.

3) Now pop open the access hatch to the lower left of the control panel and then slip the ink cartridges into their color-coded slots. These are tricky to install, so make sure that the HP logo on the front edge of each cartridge is right-side up and facing you. Line up each cartridge's top and bottom edges in its slot and then press it in until it clicks. When properly installed, the cartridges will line up neatly next to one another.

4) Next, install the print heads. Before you peel open their containers, shake them from side to side six or so times. Be sure to detach each print head's two protective plastic caps. Each print head has a U-shaped handle; raise it. Slip the print head down over the two ink nozzles on the front edge of the color-coded slot and then press it securely downward into place. Lower the U-shaped handle.

5) Finally, connect the printer's AC adapter and plug it in. Press the printer's power button on the right end of the control panel. This starts an initialization cycle, which can last for several minutes. The display on the

printer's front panel will tell you what's going on.

6) Next, load some paper. Should you need to adjust the widths of the trays, use the adjustment bars along the left sides. Press down on the gray button on the tip of the bar and then move the bar to the left.

Note that if you have forgotten to attach something, such as the rear paper duplexer (oops), or if you've installed a print cartridge the wrong way (oops again), the readout on the display will tell you so. After you correct the matter, you may need to press the OK button to the right of the display.

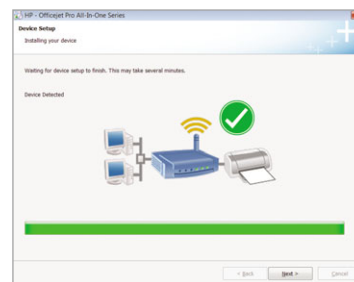
Software Setup

Moving to a PC on the network, insert the installation CD that came with the printer. Our OfficeJet L7780 included three Starter CDs: one each for Windows XP/2000, Windows Vista, and Mac OS X 10.3/10.4. If the Setup.EXE utility on the disc doesn't launch automatically or appear in an AutoPlay window, browse to the CD and double-click it. In the AutoPlay panel, click Run Setup.EXE.

1) In Setup, click Install and Next. HP recommends that you disable your antivirus software temporarily while you're installing the printer and that you click Allow or Unblock should a firewall request pop up during the installation. You also should close any other open applications.

2) Click Next then Next again to allow Setup to automatically download and install any updates available online. We decided to let the program install the recommended pack of software for the printer; click Custom if you would rather pick and choose the applications you want. Click Next when you're ready, and then I Agree after you read the license agreement.

3) Click Next again if you want to allow Setup to install everything on your C: drive. Alternately, if you want to specify a different folder or partition (hard drive section with its own drive letter or letters), such as D:\Program



First, assemble the printer and install it with a wired Ethernet cable connection to the router.

Files\HP, click Change and choose a folder. Click OK and Next.

4) The following panel lets you choose the Connection Type for your printer, namely USB or Wired/Wireless, where "Wired" means via Ethernet. Here's a tricky part: Even if you're setting up a wireless printing connection, you still need to temporarily connect the OfficeJet to your router with an included Ethernet cable. Do this and then click Next.

5) If a warning message about your firewall appears, shut down the firewall before you click Continue. In our case, we had to disable ZoneAlarm (to do this, right-click ZoneAlarm's system tray icon and choose Shut Down ZoneAlarm), as it was keeping Setup from finding our OfficeJet L7780. Setup now will search for the new printer on your network. Click Next.

6) In the Found Network Printers window, select your printer under Printer Model by clicking it once. Click Next to continue. Once the Device Setup panel reports "Device Detected," click Next again. After Setup installs the rest of its software, click Finish. We clicked Cancel to decline the fax setup wizard, but you can opt for this if you like.

7) Finally, click Print Test Page. If the printer produces a test sheet, click OK. You have a working wired OfficeJet.

Take To The Air

Now to make the printer wireless.

1) On the printer's front panel, under the display, press Setup. Press the down

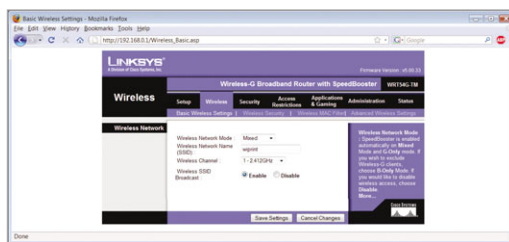
arrow on the directional pad to the right of the display to choose Network, and then press OK. Select Wireless Radio and OK, and then On and OK.

2) Next, disconnect the Ethernet cable from the back of the printer. On the display, choose Wireless Setup Wizard and press OK. If the printer detects your wireless network, you'll see its name, or SSID (Service Set Identifier). If you don't know it, you probably can find it in your wireless router's settings. Likewise, if the printer doesn't detect your WLAN, chances are that you'll need to turn on the SSID Broadcast feature, which also is controlled by your router.

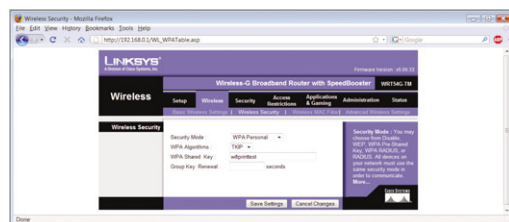
3) Here are the steps we followed to access our Linksys router's settings; they're pretty typical, and they apply to many other routers and switches. If your router's users manual has instructions that differ from our steps, use them instead.

Launch your browser. In the Address bar, type 192.168.0.1 and press ENTER. (Manufacturers traditionally reserve this IP [Internet Protocol] address, 192.168.0.1, for the switch or router running the network. It's a local IP address that only applies within your LAN, by the way. Your ISP [Internet service provider] assigns a different global IP address to your router [and thus the computers on your network as you surf] so that it has a unique identity on the Web.) Next, type in your router's username and password to access its settings. Typically, the factory-set username is **admin**, and there is no password, but we and router manufacturers strongly encourage you to change both of these for security reasons, if you haven't done so already. If you do, be sure to write them down somewhere safe.

In our Linksys router's settings, we clicked the Wireless tab to find the Wireless Network Name (SSID), which was **wiprint**. Here we also set the Wireless SSID Broadcast feature to Enabled. If you need to do this, too,



Next, use your browser to enter your router's settings and find the name of your network, or its SSID. You'll need this to tell your printer which network to join.



In the router's settings, you'll also find the type of encryption your wireless network uses, along with its passphrase or shared key.

click Save Settings afterward, then re-run the printer's Wireless Setup Wizard.

4) After you've selected your wireless network name, or SSID, and pressed OK, you'll need to type in the passphrase, or the key to your wireless network's encryption. To find this, we clicked the Wireless Security subtab under the Wireless tab of our Linksys router's browser-based settings panel, where it was called WPA Shared Key.

5) Using the on-screen keyboard, we used the printer's directional pad and OK button to type each letter of our passphrase, **wifiprinttest**, into the display. If there are capital letters in your encryption key, move the blue cursor to ABC and press OK; press OK again to return the keyboard to lowercase letters. Likewise, select 123 if you need to type a number or special character, such as # or @. If you need to backspace to re-type a character, highlight Clear and press OK. The left and right arrow icons let you move the passphrase cursor back and forth. Choose Done and OK when you're through.

6) Press OK again, and the OfficeJet Pro LL7780 will attempt to connect to

your wireless network. If it can't, double-check your passphrase and SSID and re-enter them. If your printer can't find the wireless network at all, even if you type in the SSID manually, you may need to move it closer to the router or add the printer's IP address (noted in the Location line of the test sheet you printed earlier) to your router's MAC (Media Access Control) address filtering "safe" list.

7) If the printer connects successfully, try printing another test page. Now re-enable your firewall, if you shut it down, and try printing again. We received a pair of ZoneAlarm challenges about the HP Software Update Client, so we selected Remember This Setting and clicked Allow.

8) To connect another PC on the network to the new wireless printer, try to enable the HP in Windows' printer settings. In Vista, click Start, Control Panel, Printers, the name of the wireless printer, and Set As Default. If the new printer isn't listed, click Add A Printer and follow the instructions. In WinXP, click Start, Control Panel, and Printers and Faxes. Right-click the printer's name and choose Set As Default Printer. Again, if the new printer doesn't appear as an option, click Add A Printer and complete the Add Printer Wizard. If none of the above methods works, run the appropriate HP Starter CD on the PC to install the Wi-Fi printer's software and complete its setup.

Untied

Now that you've cut the cord, so to speak, you can put your wireless printer where it's convenient, not merely within reach of your PC or router. It's just another example of the way that Wi-Fi has helped you shape your computing experience to your lifestyle, and not the other way around. ■

BY MARTY SEMS

EXAMINING ERRORS

COMPILED BY THE SMART COMPUTING STAFF

Error: Operating System Not Found.

Translation: A Windows 95 PC no longer boots, producing this error message. Attempts to boot using a diskette and the Win95 CD fared the same. There are files on the hard drive the user needs to recover. This problem may occur because the BIOS (basic input/output system) doesn't recognize the hard drive. This could indicate a hardware failure.

Solution: First, try to make copies of the personal files in case the hard

drive hasn't failed. Because this is a Win95 PC, many of the available methods won't work.

Physically remove the hard drive from the Win95 computer and connect it to spare data and power cables in a second PC. You may need to move a jumper on the old drive depending on its position on the second PC's data ribbon cable, namely to Master (end connector) or Slave (middle connector). Turn on the second computer and



copy the personal files to its hard drive, then to another drive or disc.

Return the hard drive to the Win95 PC. Turn the computer on and then enter the BIOS Setup. Move the floppy and CD-ROM drives ahead of the hard drive in the boot priority list and then save your changes. Now you'll be able to use the DOS tools on a system diskette to try and fix the problem or the Win95 CD to reinstall the OS (operating system). ■

Error: Update requires restart.

Translation: AVG will generate this message after a security patch that requires a system restart before the update will take effect. In some cases, this message may continue to appear, even after you've rebooted the PC. AVG indicates the error message occurs because of temporary

files that are left on your computer after the update.

Solution: You'll need to delete the WAIT4SD file to stop AVG from generating the Update Requires Restart message. Open AVG Control Center and highlight the Update Manager component. Click the Settings button and choose the Advanced tab. Click

the Delete Update Temporary Files button and click OK. Next, open the AVG folder on your hard drive, which is typically located under C:/PROGRAM FILES/GRISOFTAVG. If the WAIT4SD file still exists, delete it. Then, restart your computer. The error should no longer occur. For more information see tinyurl.com/62gugp. ■

Error: No Restore Points have been created on your computer's system disk.

Translation: When you attempt to use the System Restore feature in Windows Vista, you may receive the above error message. In addition, only the most recent backup files from Windows Vista Complete PC Backup are available. This problem occurs on a computer that has a dual-boot configuration.

The problem occurs because the earlier operating system (such as Windows XP) deletes all of the restore points created by Windows Vista. The earlier operating system also deletes all Complete PC Backup files except the most recent versions.

Solution: Microsoft recommends one of the following solutions to resolve the issue:

Method 1: Add a key to the WinXP Registry. Remember that editing the Registry can be dangerous, however, so

proceed with caution. To access and then back up the Registry, click Start, click Run, and type `regedit` in the dialog box. Click OK and then click HKEY_LOCAL_MACHINE. While this entry is highlighted, click File and Export. Choose a name and location for the backup file. Next, to edit the Registry, navigate to HKEY_LOCAL_MACHINE\SYSTEM\MOUNTED-DEVICES\OFFLINE. Here, you'll need to add the following entry:

Value name: \DosDevices\D:
Type: REG_DWORD
Value data: 1

In the above example, D: is the partition on which Vista is installed.

If you do not see the HKEY_LOCAL_MACHINE\SYSTEM\MOUNTED-DEVICES\OFFLINE subkey, you'll need to create it. To create the Offline subkey, right-click Mounted Devices and select New and Key.

After you restart WinXP, you won't be able to exchange data between

WinXP and Vista as easily as before because the workaround protects the data in Vista from being accessed/changed by WinXP. As a result, you may want to use a USB drive for data exchange.

Microsoft warns that adding this key can have unwanted side effects on your system. For example, applications may fail if they try to put data on the now inaccessible drive. If this happens, it's possible the system will ask you to delete this value.

Method 2: Use the Bitlocker feature on the volume in Windows Vista. Bitlocker is a security feature of Vista. The Bitlocker feature should be enabled on the Windows Vista volume that stores restore points by default when the operating system boots. As a result, when WinXP or another operating system starts, the Windows Vista volume on which the Bitlocker feature is enabled is inaccessible. For more information, visit support.microsoft.com/kb/926185/en-us. ■

Error: This application has failed to start because MSVCR70.dll was not found. Reinstalling the application may fix the problem

Translation: Your computer is missing a DLL (dynamic-link library) file. A DLL file contains a library of information that a program accesses when necessary.

Windows-based computers use this type of file frequently.

You may encounter this error in a number of different situations, though primarily when trying to launch a program. The fix is a relatively simple one.

Solution: You need to download the missing DLL file. Visit a site such as tinyurl.com/2h4c and search for

MSVCP70.dll. Download it as a zipped file, unzip it, and install it to fix the problem.

Zipping a file is a method of compression. Compressing a file makes it smaller and therefore more portable. To unzip a file, right-click it, select Extract To, and save the unzipped file or files to your desired location. **|**

Error: Apdproxy.exe: Unable to locate component. This application failed to start because ConnAPI.dll was not found.

Translation: This error refers to the Adobe Photo Downloader application, which is a component of Adobe's Photoshop Elements 6. Users may encounter this error message when starting Windows or when launching Adobe Photoshop Elements 6.

Solution: According to Adobe's support site, the best way to eliminate this error is to remove the NOKIA-Manager.mox file or disable the Adobe Photo Downloader to prevent it from loading when Windows boots up.

If you don't download photos from a Nokia mobile phone to your PC, then simply click Start, click My Computer (Computer in Vista), and then navigate to C:\PROGRAM FILES\ADOBE\PHOTOSHOP ELEMENTS 6.0\MOXPLUGINS. Once in

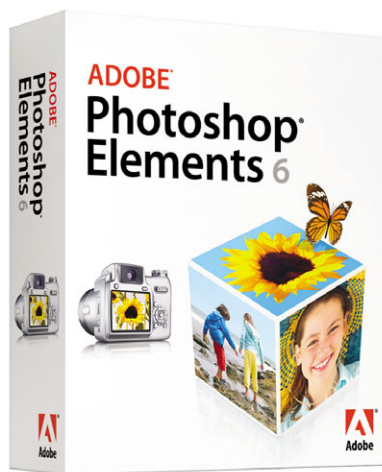
the Moxplugins folder, right-click the NOKIAManager.mox file and click Delete. Click Yes and restart your PC. The error should no longer occur.

If you occasionally transfer photos from your Nokia mobile phone to your PC, then you'll need to install or reinstall the latest version of the Nokia PC

Suite software, which you can obtain from www.nokiausa.com/A4986252. After doing so, you should no longer encounter the error.

Your final option is to simply disable the Adobe Photo Downloader. To do this, launch the Organizer in Photoshop Elements; click Edit, Preferences, Camera Or Card Reader; and then disable the Auto Launch Adobe Photo Downloader On Device Connect option.

Click OK to finish. After you do this, the Adobe Photo Downloader won't start when Windows starts, nor will it launch automatically when you plug in a camera, card reader, flash memory drive, or other memory device. To load photos into the Organizer, you'll have to launch Photoshop Elements and click File, click Get Photos or Videos, and then select From Camera Or Card Reader. See tinyurl.com/4ov4xt for more information. **|**



Error: NTLDR is compressed. Press CTRL-ALT-DEL to restart.

Translation: You may see this error message if you have compressed the data on your hard drive using the Compress Drive To Save Disk Space feature that appears when you right-click a drive in Windows Explorer, click Properties, and select the General tab. Typically, the error will appear after you've performed a non-destructive recovery or system recovery of Windows.

Solution: Begin by inserting the recovery disc that was included with your PC or your retail copy of Windows and wait for the Microsoft Recovery Console window to appear. Note that you may need to force the PC to boot from your CD or DVD drive, via the computer's BIOS (basic input/output system), to start the computer from the disc. When the text-based section of Setup begins, press the R key to select the Repair or Recover option. At the Which Windows Installation Would

You Like To Log On To screen, enter the number that corresponds to the drive where Windows is installed and enter the Administrator password. At the prompt, type `cd c:\` (or if you installed Windows on another drive, enter the corresponding drive letter) and press ENTER. Then, type `attrib -c ntldr` and press the ENTER key. At the next prompt, type `Exit` and press ENTER. The next time you start Windows, the error should not appear. For more info see tinyurl.com/68umtw. **|**

Have questions about an error message you've seen? Send us your message (errormessages@smartcomputing.com), and we'll try to decipher it. Tell us what version of Windows you're using, give the full text of the error message, and provide as many details in your explanation as possible. Volume prohibits individual replies.

FAST FIXES

Security Update For Internet Explorer

Problem: A publicly disclosed vulnerability exists in recent versions of Internet Explorer that could allow remote code execution if a user views a specially crafted Web page using Internet Explorer, thus allowing an attacker to gain control of your system.

Solution: To protect your computer against this possible kind of attack, go to www.microsoft.com/download, type **KB960714** in the Search field, and click Go. From the results list, find your version of IE (either 6 or 7—6 is listed simply as Internet Explorer without a number) and your current Windows operating system, and click the link. On the following page, click Download, found in the blue box. Save the file to your hard drive and wait for the download to complete. Locate the file, double-click it to begin the installation, and then follow the on-screen directions to install the file. Restart.

www.microsoft.com

Nero 9.2.6.0

Problem: During the installation of Nero 9.0.9.4c on Windows Vista, the installation may abort, displaying the error message “Windows Installer has stopped working.”

Solution: To update to Nero 9.2.6.0, Nero first recommends running its CleanTool to uninstall your existing version. Go to www.nero.com and from the Support menu, select Downloads. On this page, click Nero 9 CleanTool from the Tools & Utilities section. On the next screen, click Download and save the CleanTool to your Desktop. The file you download will be zipped (compressed), so you’ll need to unzip it with WinZip or WinRAR. Save the unzipped files. Next, double-click the file to launch Nero’s CleanTool. Follow the on-screen instructions (indicating which Nero product you’d like to remove) and reboot your computer when you

are done. After restarting, go back to the Downloads page at www.nero.com and select Nero 9 from the Latest Updates section. Click the gray Download button and save this file to your Desktop. Locate the file you downloaded and double-click it to install Nero 9.2.6.0. Have your Nero 9 serial number on hand, as you’ll need to enter it to make the download a permanent version.

www.nero.com

Update For Microsoft Office 2007

Problem: The Microsoft Office Compatibility Pack and 2007 Microsoft Office system could be vulnerable to attack if a user opens a maliciously modified file.

Solution: Protect yourself from this security risk by going to www.microsoft.com/download and typing **KB958439** in the Search field and clicking Go. From the results list, click the Security Update For 2007 Microsoft Office System (KB958439) link. On the following page, find the Download button in the blue box and click it, which will prompt you to save the file to your hard drive. Once the download has completed, locate the file and double-click it to begin the installation. Follow the on-screen directions to install the file. Restart your computer when finished.

www.microsoft.com

Camera Raw 5.2

Problem: A compatibility problem exists between newer Canon, Panasonic, and Leica cameras and Adobe Creative Suite 4 programs, including Photoshop CS4, Photoshop Elements 6 or 7, and Premiere Elements 4.0 or 7.

Solution: To fix this compatibility problem, go to www.adobe.com/downloads/updates, and find Camera Raw 5.2 Update from the list of Featured

Updates. Click the blue Windows link below the descriptive paragraph. On that update page, scroll down and click the Proceed To Download button. Click Download Now and save this file to your hard drive. Next unzip it using WinZip or PKZIP. Now, close Photoshop CS4 and Adobe Bridge. Next double-click CameraProfiles.exe from the file you just downloaded to begin installation and follow any instructions on-screen. Go to My Computer, open Local Disk (C:), and go to PROGRAM FILES\COMMON FILES\ADOBE\PLUG-INS\CS4\FILE FORMATS. Find the current Camera Raw.8bi plug-in and drag and drop it to a different location for backup. Then find the new Camera Raw.8bi plug-in you downloaded and copy it into PROGRAM FILES\COMMON FILES\ADOBE\PLUG-INS\CS4\FILE FORMATS.

www.adobe.com

FIX OF THE MONTH

Security Update For Windows

Problem: Windows has a security issue that could let an outside attacker control the system.

Solution: Download a security update that resolves two Windows vulnerabilities by modifying the way Microsoft GDI (Graphics Device Interface) handles file-size parameters and integer calculations. To get this update, go to www.microsoft.com/download, type **KB956802** in the Search field, and click Go. From the results list, choose the link that relates to your operating system. On the following page, click the Download button. Locate the file, double-click it to begin the installation, and follow the on-screen directions to install. Restart when complete.

www.microsoft.com

Q&A

Need help with your hardware or software? Looking for simple explanations on technical subjects? Send us your questions!

Get straight answers to your technical questions from *Smart Computing*. Send your questions, along with a phone and/or fax number, so we can call you if necessary, to: *Smart Computing* Q&A, P.O. Box 85380, Lincoln, NE 68501, or email us at q&a@smartcomputing.com. Please include all version numbers for the software about which you're inquiring, operating system information, and any relevant information about your system. (Volume prohibits individual replies.)



Windows

Q The Taskbar at the bottom of my Desktop disappeared. Now I have a blue bar on the right side of the screen that pops in and out. I am unable to turn off the PC. No Start icon is showing. I'm running Windows XP.

A Somehow your Taskbar was inadvertently moved to the right side of your Desktop. Fortunately, it's an easy-to-remedy

problem. Simply move your mouse pointer over to the right until the Taskbar pops out and then click it and drag it to the bottom of your Desktop. Next, you'll want to hover over it with your pointer until it reappears and then right-click it and select Properties. Uncheck Auto-Hide The Taskbar and then checkmark the Lock The Taskbar box to keep it in place. Click OK to save your changes. ■



Utilities

Q I've accidentally deleted several directories on my WinXP computer. I don't have any backup software, and these are very important files. I used the MS-DOS command `rmdir` to remove the parent directory, so there's nothing in my Recycle Bin.

A It's the rare user who hasn't accidentally deleted an important file, so don't be too hard on yourself. If you're lucky, we'll be able to help you recover the directories and their contents.

First, it's important not to use your computer until you've followed our instructions. You want to minimize any hard drive activity on your computer because using it could wipe out the files you seek to recover. Don't shut your computer down and don't save any files. This means that you'll need to find a second computer to download the utility we'll use. You'll want to get a USB flash drive, as well.

Next, you'll need to obtain undelete software. One such option is FreeUndelete. To get it, first visit www.officerecovery.com/freeundelete (on your second computer). Download FreeUndelete to your flash drive and when the download is complete, install it onto the flash drive. Plug your flash drive into your main computer and navigate to the utility on the flash drive. Launch FreeUndelete, select the hard drive that contained the missing directories, and click Scan.

FreeUndelete will scan the drive looking for files that have been deleted and then present you with a list of files and directories you can restore. Next, click the Browse button and select a location for the recovered directories. We recommend creating a temporary directory with the Make New Folder button. Restoring files and directories to their original folders can lead to overwriting legitimate files.

Highlight the directories you want to restore and click the Undelete button. FreeUndelete will then restore the files and directories to the temporary directory you specified. Review these files to be sure they're what you're missing and then copy them back to their original location.

How does this magic work? Undelete utilities such as FreeUndelete take advantage of WinXP's file system. A file system is the method used by a computer to manage data stored on hard drives and removable storage. WinXP uses NTFS (NT file system), and older operating systems use FAT (file allocation table).

When you create a file or directory, Windows determines the size of the file and looks for space on your hard drive to store the file. It does so by examining the MFT (Master File Table). The MFT contains a record for each file on the hard drive and any free space available on the hard drive. Think of it as a Table of Contents for your computer.

When you delete a file, either by emptying the Recycle Bin or using an MS-DOS

command, the MFT is modified by NTFS. NTFS will “mark” the file as deleted by setting a flag in the MFT file record, signifying that the previously used space on the hard drive can be used for storage. Your original data is still there on the hard drive but hidden from Windows.

As you fill up your drive, eventually every sector will have had data written to it. The next time you save a file, Windows will consult the MFT and select a sector that is marked free based on when the flag was modified. This is usually done in a first-in-first-out process.

When you run an undelete utility such as FreeUndelete, the utility typically scans the MFT looking for the aforementioned flags. It

then looks where these flags point on your hard drive and retrieves the names of the files, as well as their creation date and size. At this point, it’s trivial for the utility to recover your files.

This brings us back to why we recommend that you minimize the use of your computer until you’ve recovered your directories. If you were to save a file or even use a program that creates temporary files, Windows might overwrite the sectors containing your valuable data.

And finally, we recommend setting up a backup system to protect your data. With the dramatic drop in hard drive prices and the availability of cheap online backup services, it’s easy and affordable to protect yourself. ■



Hardware

Q Why might two hard drives on a server set up in a mirrored RAID (redundant array of independent disks) both fail? Is it possible for them to both fail simultaneously, or is it possible for the secondary drive to fail without your knowledge, so that when the first drive fails, there’s nothing to back it up?

A A mirrored RAID is a good way of protecting your data, but it isn’t foolproof. With a mirrored RAID (often called RAID 1), two hard drives are used; each is a mirror of the other. If one drive fails, the other has a complete copy of all the data. Simply replace the failed drive, and the RAID system should replicate the data to the new drive.

RAID 1 isn’t invulnerable, however. There are several scenarios where you could still lose your data. If one drive were to fail, you would need to replace the other quickly, lest you lose all the data. If you used two drives in the RAID that are exactly the same, you can expect the life span of the drives to be similar. Many servers can reserve a third drive as a “hot” spare to be automatically swapped in place of a failed drive.

Also, a RAID array serves no purpose if no one watches over it. Most RAID systems have a notification utility where an email or some type of alert is generated. If these alerts aren’t monitored or if the email is ignored, your data is in peril. ■



Windows

Q I’m using Windows Vista Home Premium on my computer and am considering an upgrade to the Ultimate version. If I install this new version over my present system, will I lose all my files and programs?

A Microsoft offers two types of upgrades for Vista. The first is a “clean” installation of the new version that will wipe your system and do a fresh install. The second is an upgrade that preserves personal files, settings, and programs. If you’re running the 32-bit version of Vista and want to upgrade to the 64-bit version, you need to do a clean installation.

We sometimes recommend a clean installation when changing to a different operating system, but the core of Vista Home Premium and the Ultimate version are identical. Before upgrading, make sure you have a solid backup of crucial data. Any upgrade or installation has the potential to go awry. Backing up is prudent.

If you decide to upgrade, there are two ways. One is by purchasing an upgrade disc from a brick-and-mortar retail store, and the second is to use Windows Anytime Upgrade to buy the upgrade disc online. Both should be the same price, but you might find one is cheaper by shopping around. ■

Frequently Asked Questions

Answers to users' most common questions about **SOHO Networking**

Security is a top priority with regard to shared data, so it's important to protect your network storage.

FAQ What are the trade-offs of using a security appliance at my router vs. using security software on each networked PC?

Home users with only a few PCs really don't need to worry much about what's happening on their LAN (local-area network)—in some cases they don't even exchange files among each other. This is why home users can get by with endpoint security software products such as those from McAfee (www.mcafee.com), Symantec (www.symantec.com), and others.

Businesses are different. There are more users to contend with and a lot more traffic passes among different users as they collaborate and work together. This means SMB (small and medium-sized business) owners need to be more concerned with things happening on their network, and it makes a lot more sense to stop potential attacks where they enter your LAN (at the broadband router).

So it's really not a trade-off. Most SOHO (small office/home office) businesses will apply security in layers, installing security software at each endpoint, along with a security appliance (such as SonicWall's TZ150 or TZ180; www.sonicwall.com) at the gateway (the entrance to a network). An appliance will do many of the things that endpoint software does. For example, an appliance provides a firewall, supports malware scanning, and handles intrusion defense. The benefit of an appliance is that it can catch many potential threats before they ever reach your users. Security software at each PC will protect the users from any threats that might get through to the endpoint.

FAQ How can I centralize my business data all in one place? How should I protect that data?

SOHO businesses can usually store common work files and resources on a NAS

(network-attached storage) device, such as a LinkStation from Buffalo Technology (www.buffalotech.com) or a NAS200 from Linksys (www.linksys.com). Any of your employees on the network can access that storage.

Security is a top priority with regard to shared data, so it's important to protect your network storage. For example, partition the network storage into multiple drives or folders and only grant access to the employees that need the data to do their jobs. You might also set file access to "read only" to prevent employees from making unauthorized changes to that data. From a physical standpoint, keep the network storage device in a locked cabinet or closet (usually with your other networking or telecommunication devices) to prevent theft.

Don't forget to back up the data on a regular basis. Many network storage devices provide backup software or internal one-touch backup features that can image the storage to another system or even over the Internet to a remote backup provider.

FAQ Should I add wireless access to my business network?

Wireless access, or Wi-Fi, was designed to accommodate user mobility. For example, an employee who sits at one desk every day and never works in the field probably does not need Wi-Fi, but an employee who takes his laptop around the office and into the field can usually benefit from wireless access.

If you include wireless access, be sure to use wireless security, such as WPA2 (Wi-Fi Protected Access 2), to encrypt the data passing between wireless antennas. This protects the data and prevents nearby users from piggybacking on your open network and possibly accessing your network storage. Remember that all of the wireless devices of all your network users must be compatible with the same security scheme, or they won't be able to access the wireless network. ■

Are you having trouble finding a product or getting adequate service from a manufacturer? If so, we want to help solve your problem. Send us a description of the product you're seeking or the problem you're having with customer service. In billing disputes, include relevant information (such as account numbers or screen names for online services) and photocopies of checks. Include your phone number in case we need to contact you.

Letters may be edited for length and clarity; volume prohibits individual replies.



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Winferno Software Honors Rebate Check & Acronis Sends Software Disc

In September 2008, I purchased McAfee antivirus software online. The software had a \$20 rebate. I submitted everything required. After a time, I received a check from Winferno Software. I deposited the check, but a week later I received notice from my bank stating that payment had been stopped on the check. They removed \$20 from my account, plus a \$10 penalty for a bad check. I emailed and called McAfee support, but no one returned my calls. Do I have any other options?

Richard
Punxsutawney, Pa.

We contacted Richard on Dec. 12, 2008, to ask if he had heard anything about his rebate. He responded that his last attempt to reach someone who could help had been on Dec. 9, when he called a McAfee support number but received only an automated service. To begin working on this issue, we emailed a representative with McAfee but received no response. Next, we contacted McAfee's rebate customer support and found there were no records of Richard's purchase. While reviewing Richard's email, we noticed that he mentioned the rebate check he received was from Winferno Software.

Winferno is an online software retailer that sells software from several publishers, including McAfee. We contacted Winferno support with Richard's issue and the same day received a phone call from a representative who explained what had happened with Richard's check. We were told that the rebate processing company that McAfee had been using had suddenly gone bankrupt. The representative apologized for the inconvenience and promised that a check covering the rebate and the bank's penalty fee would be sent to Richard that day. Later, Richard sent word that he had received the check on Dec. 23.

On Dec. 17, 2008, I purchased Acronis True Image Home 2009 thinking that I was ordering a physical or hard copy of the product, but it turned out to be a download. After I provided my address and phone number and entered my payment information, I realized it was a download. I was provided only one chance to download the software, and because I have dial-up and needed to use the phone, the download was canceled, and everything was lost. I tried to contact Acronis about this problem, but to no avail. Could you help me out?

Andrew W.B.
Hobbema, Alberta, Canada

On Dec. 22, 2008, we contacted Andrew to ask if he had any luck downloading the software he purchased. In his email response, he explained to us that each time he attempted to download the software, his dial-up connection would fail and the download would be lost. On Acronis' Web site we found that when a software download is purchased, customers are given the option to buy Extended Download Service (which allows you to download the software again if needed) or request that a physical software disc be sent. Andrew said that he was willing to pay the additional fee for a disc, so we contacted Acronis and explained the issue. The representative that we reached was very helpful and assured us that Andrew would receive a True Image Home disc. We provided our contact with Andrew's mailing address and later received an email from another Acronis representative. The email listed the directions that Andrew would need to follow in order to add the software disc onto his original purchase. We sent Andrew the directions, and on Dec. 31, he responded saying the disc was on its way. ■

Judging A PC By Its Cover

I'm a book nerd. I prefer hardback and obsess about dust jackets. I avoid "movie covers"—those with photos taken from film adaptations. Give me the original artwork or forget it. This is just a personality quirk when it comes to books (though my wife might use a different term), but it actually means something in the world of computing. Paying attention to the cover (or case), whether you're building your own machine or shopping for a new spring deal, will help avoid horror stories and perplexing mysteries within.

Ask my son (or any avid gamer) to choose between machines with only a picture and they'll go straight for the flashy-looking box with shiny parts and a cool grille. I, on the other hand, prefer a stripped-down design and a small footprint. The kids may be on to something, however.

Most folks with large cases and big grilles, especially avid gamers, have them for a reason. It's called airflow. Lots of space makes for cooler running. And cool running makes for better performance, especially with high-end equipment. Compare the amount of space in the case to the dimensions of your motherboard, expansion cards, and drive chassis. Even when all the components fit inside, leave space around each SATA (Serial Advanced Technology Attachment), IDE (Integrated Drive Electronics), and power cable. Getting it all to fit isn't enough: This isn't a suitcase, it's a sunroom. Open spaces and fresh air are the goal.

Speaking of fresh air—don't forget the fans. Ventilation works hand-in-hand with open space to cool things off. We were just delighted to discover that our new case has no fewer than four built-in fans, including one that blows out of the clear (and well-lit) side panel. Case fans are one of the most crucial internal hardware elements, though we rarely notice them. Most cases come with at least one fan on the back, but today's processors and video adapters need more than that. Look for at least two or three fans spread throughout the back and front. It's hard to go overboard here, though you need to make sure the power supply has enough connectors for all those blowers. I'm still not sure about the benefits of see-through sides or flashing green

lights, but I'm sure our local sixth-grade student council rep can provide a lengthy explanation.

No casework can be complete without a consideration of power. The more juice your power supply can provide, and the more reliably, the better your machine will run. Power supplies aren't always or necessarily part of the case—they're removable and often sold separately. They come together often enough though, even when you're building a PC from parts, that they deserve a place in this discussion. Wattage (or peak power) is the simplest way to measure power supplies and, like most simple measurements, it's imperfect in a lot of ways. But who has time to calculate each voltage rail when you have speakers to pick out? A power supply that provides 350 watts should be a bare minimum for even a lightly used casual machine; 400W or 450W are better. If you're going to be running high-end gaming or graphical hardware, look for a supply with 500W or more. Beyond the wattage, make sure your power supply is securely attached and has plenty of ventilation. Power problems are very common but can be very subtle. Finally, as a personal preference, I've always favored power supplies with an extra plug-in for the monitor, letting you control both the computer and display with a single outlet and switch. Like a first edition with original artwork: If the insides are the same, it's sure nice to have something special on the outside.

Reader Recommendation Update: Following my ambivalent musings on spell checkers a few months ago, several of you pointed out tinySpell (free; tinyspell.m6.net), a freeware utility that goes beyond browser plug-ins and applies to any Windows application. You can set it to run in the background and check Clipboard text, if you're up for the kind of constant correction that prevents embarrassing mistakes. ■

BY GREGORY ANDERSON

Gregory Anderson is a regular contributor to Smart Computing and several other technology publications. He keeps a sharp eye (with the help of thick glasses) on computing trends and enjoys working with geeks of all stripes—most of the time. Share your book cover or computer case idiosyncrasies at gregory-anderson@smartcomputing.com.

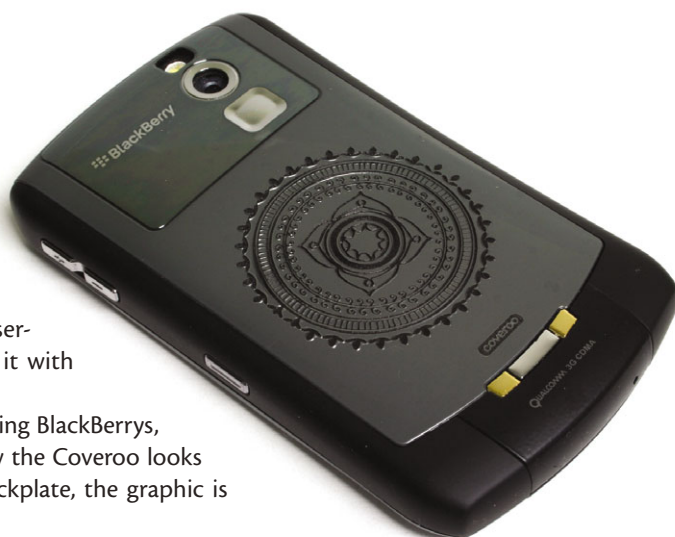


Coveroo

\$19.95 | Coveroo
www.coveroo.com

Coveroo would like to turn your mobile phone's boring backside into a conversation starter. This young company has an interesting take on gadget personalization. Rather than ship stickers that customers then attach to their phones, Coveroo ships brand-new backplates that have laser-etched designs. When you receive your Coveroo, you swap it with your phone's existing backplate.

Coveroo has tons of designs for an array of phones (including BlackBerrys, among others) and a well-designed site that lets you see how the Coveroo looks on your phone model. And because Coveroo etches the backplate, the graphic is durable, ensuring that your cool new look doesn't fade. **|**



by Joshua Gulick



Morespace Portable 500GB

\$139.99 | Hammer Storage
www.hammer-storage.com

If you're like me, one of the things you value most in an external hard drive is plug-and-play functionality. I was glad to see the Morespace Portable external hard drive display this ability. Just plug it into a USB port on a PC or a Mac, and it will work right away. And the device is tiny, so it's incredibly easy to take with you. A bonus is that the included USB cable is nice and short, so you won't have to deal with a lengthy cable when you're stowing it for transport.

Another cool feature is that you can order a customizable skin, so everyone will know that the coolest-looking external hard drive belongs to you. **|**

by Seth Colaner

Orbita Mouse

\$98.50 | Cyber Sport
www.cyber-e-sport.com

Though it looks more like an alien spaceship than a mouse, the Orbita Mouse is nevertheless every bit as functional (as a mouse, that is). The wireless Orbita Mouse is designed to be the ultimate three-button scroll mouse, with a butter-smooth ball bearing base that lets you spin the thing on its own axis to scroll. The device comes with a charging base that connects to your computer via a USB cable to juice up the mouse when the battery's running low.

The circular mouse is covered in soft silicon for a non slip grip and comfort. To use it, you can program the three buttons to perform normal mouse operations and configure it to fit your particular office setup. **|**



by Seth Colaner

Life On Record Trans-It Edge 16GB

\$124.99 | TDK
www.tdk-media.com

Sleek, masculine aesthetics mark this USB flash memory drive from TDK, now a part of Imation. The plastic Trans-It Edge has the look of brushed aluminum with a wrap-around blue glow when in use. Its USB connector retracts until you need it.

TDK fortifies this drive with a five-year warranty, as well as Flash Lock, a utility that lets you password-protect an encrypted partition to keep your data secure. The drive also comes in 4GB (\$44.99) and 8GB (\$84.99) versions. **|**



by Marty Sems

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